

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

United States Patent and Trademark
Office
(Box PCT)
Crystal Plaza 2
Washington, DC 20231
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day/month/year)

11 January 1999 (11.01.99)

International application No.

PCT/US98/09590

Applicant's or agent's file reference

0106-0001

International filing date (day/month/year)

12 May 1998 (12.05.98)

Priority date (day/month/year)

12 May 1997 (12.05.97)

Applicant

KOZAM, Marc, L. et al

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

11 December 1998 (11.12.98)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Lazar Joseph Panakal

Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

PCT

REC'D 07 DEC 1999

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 0106-0001	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US98/09590	International filing date (day/month/year) 12 May 1998 (12.05.1998)	Priority date (day/month/year) 12 May 1997 (12.05.1997)
International Patent Classification (IPC) or national classification and IPC IPC(6): G06F 17/30 and US Cl.: 707/4,10		
Applicant KOZAM, MARC L.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.
- ☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 0 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 11 December 1998 (11.12.1998)	Date of completion of this report 24 November 1999 (24.11.1999)
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703)305-3230	Authorized officer Jack M Choules Telephone No. (703) 305-9600

Form PCT/IPEA/409 (cover sheet)(July 1998)

I. Basis of the report**1. With regard to the elements of the international application:***

- ☒ the international application as originally filed.
- ☒ the description:
pages 1-10 as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____
- ☒ the claims:
pages 11-15, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the demand
pages NONE, filed with the letter of _____
- ☒ the drawings:
pages 1-1, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages NONE, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages NONE
- ☐ the claims, Nos. NONE
- ☐ the drawings, sheets/fig NONE

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. STATEMENT**

Novelty (N)	Claims <u>1-24</u>	YES
	Claims <u>25</u>	NO
Inventive Step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-25</u>	NO
Industrial Applicability (IA)	Claims <u>1-25</u>	YES
	Claims <u>NONE</u>	NO

2. CITATIONS AND EXPLANATIONS (Rule 70.7)

Claim 25 lacks novelty under PCT Article 33(2) as being anticipated by Lee et al., US patent no. 3,576,433. Lee teaches "centralized collection of geographically distributed information" (col. 1, lines 41-65).

Claim 25 lacks novelty under PCT Article 33(2) as being anticipated by Williams, Jr., US patent no. 4,868,866. Williams teaches "centralized collection of geographically distributed information" (col. 2, lines 41-50).

Claim 25 lacks novelty under PCT Article 33(2) as being anticipated by Devany et al., US patent no. 5,179,660. Lee teaches "centralized collection of geographically distributed information" (col. 2, lines 31-57).

Claims 1-24 lack an inventive step under PCT Article 33(3) as being obvious over JetForm in "JetForm(R) Announces First Java™-Based Electronic Forms Solution" in view of Williams, Jr. [hereafter Williams] US Patent No. 4,868,866.

As to claims 23-24, JetForm describes a system comprising, "a remote site computer" (page 1, first through fourth full paragraphs) "a transmission medium" (page 1, first full paragraph not the Web includes a transmission medium) and generally "a central computer" (page 1, fifth full paragraph and page 2, second through fourth full paragraphs).

JetForm does not describe the details of the database such as "a second data verification module". Williams does detail a central database containing "a second data verification module" (col. 3, lines 50-61).

It would be obvious to one of ordinary skill in the art at the time of the invention to provide the further checking of Williams as a checking of the data in relation to data already occurring in the database could be preformed which could not at the remote site computer.

As to claims 1-22, these claims basically recite the limitations of claims 23-24 with further limitations as follows: correction by the user is allowed after verification would at least be obvious as it is the simplest and most sure method of ensuring the date is properly corrected and the point of verifying is to have correct data, the internet and world wide web is anticipated by JetForm as above cited by the term web, Java is also anticipated in the above quoted cites of JetForm, filtering is a general form of verifying that is well known in the art and would be obvious because of its simple implementation and proven utility.

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 07 DEC 1999

WIPO

PCT

Applicant's or agent's file reference 0106-0001	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US98/09590	International filing date (day/month/year) 12 May 1998 (12.05.1998)	Priority date (day/month/year) 12 May 1997 (12.05.1997)
International Patent Classification (IPC) or national classification and IPC IPC(6): G06F 17/30 and US Cl.: 707/4,10		
Applicant KOZAM, MARC L.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 0 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 11 December 1998 (11.12.1998)	Date of completion of this report 24 November 1999 (24.11.1999)
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703)305-3230	Authorized officer Jack M Choules <i>For [Signature]</i> Telephone No. (703) 305-9600

I. Basis of the report**1. With regard to the elements of the international application:***

- ☒ the international application as originally filed.
- ☒ the description:
pages 1-10 as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____
- ☒ the claims:
pages 11-15 as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the demand
pages NONE, filed with the letter of _____
- ☒ the drawings:
pages 1-1 as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages NONE as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages NONE
- ☐ the claims, Nos. NONE
- ☐ the drawings, sheets/~~fig~~ NONE

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. STATEMENT**

Novelty (N)	Claims <u>1-24</u>	YES
	Claims <u>25</u>	NO
Inventive Step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-25</u>	NO
Industrial Applicability (IA)	Claims <u>1-25</u>	YES
	Claims <u>NONE</u>	NO

2. CITATIONS AND EXPLANATIONS (Rule 70.7)

Claim 25 lacks novelty under PCT Article 33(2) as being anticipated by Lee et al., US patent no. 3,576,433. Lee teaches "centralized collection of geographically distributed information" (col. 1, lines 41-65).

Claim 25 lacks novelty under PCT Article 33(2) as being anticipated by Williams, Jr., US patent no. 4,868,866. Williams teaches "centralized collection of geographically distributed information" (col. 2, lines 41-50).

Claim 25 lacks novelty under PCT Article 33(2) as being anticipated by Devany et al., US patent no. 5,179,660. Lee teaches "centralized collection of geographically distributed information" (col. 2, lines 31-57).

Claims 1-24 lack an inventive step under PCT Article 33(3) as being obvious over JetForm in "JetForm(R) Announces First Java™-Based Electronic Forms Solution" in view of Williams, Jr. [hereafter Williams] US Patent No. 4,868,866.

As to claims 23-24, JetForm describes a system comprising, "a remote site computer" (page 1, first through fourth full paragraphs) "a transmission medium" (page 1, first full paragraph not the Web includes a transmission medium) and generally "a central computer" (page 1, fifth full paragraph and page 2, second through fourth full paragraphs).

JetForm does not describe the details of the database such as "a second data verification module". Williams does detail a central database containing "a second data verification module" (col. 3, lines 50-61).

It would be obvious to one of ordinary skill in the art at the time of the invention to provide the further checking of Williams as a checking of the data in relation to data already occurring in the database could be preformed which could not at the remote site computer.

As to claims 1-22, these claims basically recite the limitations of claims 23-24 with further limitations as follows: correction by the user is allowed after verification would at least be obvious as it is the simplest and most sure method of ensuring the date is properly corrected and the point of verifying is to have correct data, the internet and world wide web is anticipated by JetForm as above cited by the term web, Java is also anticipated in the above quoted cites of JetForm, filtering is a general form of verifying that is well known in the art and would be obvious because of its simple implementation and proven utility.

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:
TONI-JUNELL HERBERT
SHANKS & HERBERT
TRANSPOTOMAC PLAZA
1033 N. FAIRFAX ST., SUITE 306
ALEXANDRIA, VA 22314

PCT

WRITTEN OPINION

(PCT Rule 66)

Applicant's or agent's file reference 0106-0001		Date of Mailing (day/month/year) 25 AUG 1999
International application No. PCT/US98/09590		REPLY DUE within 2 months/days from the above date of mailing
International filing date (day/month/year) 12 May 1998 (12.05.1998)	Priority date (day/month/year) 12 May 1997 (12.05.1997)	
International Patent Classification (IPC) or both national classification and IPC IPC(6): G06F 17/30 and US Cl.: 707/4,10		
Applicant KOZAM, MARC L.		

1. This written opinion is the first (first, etc.) drawn by this International Preliminary Examining Authority.
2. This opinion contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2 (a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application
3. The applicant is hereby **invited to reply** to this opinion.

When? See the time limit indicated above. ~~The applicant may, before the expiration of that time limit, request this Authority to grant an extension. See rule 66.2(d).~~

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 *bis*.
For an informal communication with the examiner, see Rule 66.6

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.
4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: **12 September 1999 (12.09.1999)**

Name and mailing address of the IPEA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231
Facsimile No. (703)305-3230

Authorized officer

Jack M Choules

Telephone No. (703) 305-9600

I. Basis of the opinion

1. With regard to the elements of the international application:*

☒ the international application as originally filed☒ the description:

pages 1-10, as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of _____

☒ the claims:

pages 1-25, as originally filed

pages NONE, as amended (together with any statement) under Article 19

pages NONE, filed with the demand

pages NONE, filed with the letter of _____

☒ the drawings:

pages 1-1, as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of _____

☐ the sequence listing part of the description:

pages NONE, as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).☐ the language of publication of the international application (under Rule 48.3(b)).☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the written opinion was drawn on the basis of the sequence listing:☐ contained in the international application in printed form.☐ filed together with the international application in computer readable form.☐ furnished subsequently to this Authority in written form.☐ furnished subsequently to this Authority in computer readable form.☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4. ☐ The amendments have resulted in the cancellation of:☐ the description, pages NONE _____☐ the claims, Nos. NONE _____☐ the drawings, sheets/fig NONE _____5. ☐ This opinion has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed."

WRITTEN OPINION

International application No.
PCT/US 98/09590

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. STATEMENT

Novelty (N)	Claims <u>1-24</u>	YES
	Claims <u>25</u>	NO
Inventive Step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-25</u>	NO
Industrial Applicability (IA)	Claims <u>1-25</u>	YES
	Claims <u>NONE</u>	NO

2. CITATIONS AND EXPLANATIONS

Claim 25 lacks novelty under PCT Article 33(2) as being anticipated by Lee et al., US patent no. 3,576,433. Lee teaches "centralized collection of geographically distributed information" (col. 1, lines 41-65).

Claim 25 lacks novelty under PCT Article 33(2) as being anticipated by Williams, Jr., US patent no. 4,868,866. Williams teaches "centralized collection of geographically distributed information" (col. 2, lines 41-50).

Claim 25 lacks novelty under PCT Article 33(2) as being anticipated by Devany et al., US patent no. 5,179,660. Lee teaches "centralized collection of geographically distributed information" (col. 2, lines 31-57).

Claims 1-24 lack an inventive step under PCT Article 33(3) as being obvious over JetForm in "JetForm(R) Announces First Java™-Based Electronic Forms Solution" in view of Williams, Jr. [hereafter Williams] US Patent No. 4,868,866.

As to claims 23-24, JetForm describes a system comprising, "a remote site computer" (page 1, first through fourth full paragraphs) "a transmission medium" (page 1, first full paragraph not the Web includes a transmission medium) and generally "a central computer" (page 1, fifth full paragraph and page 2, second through fourth full paragraphs).

JetForm does not describe the details of the database such as "a second data verification module". Williams does detail a central database containing "a second data verification module" (col. 3, lines 50-61).

It would be obvious to one of ordinary skill in the art at the time of the invention to provide the further checking of Williams as a checking of the data in relation to data already occurring in the database could be preformed which could not at the remote site computer.

As to claims 1-22, these claims basically recite the limitations of claims 23-24 with further limitations as follows: correction by the user is allowed after verification would at least be obvious as it is the simplest and most sure method of ensuring the date is properly corrected and the point of verifying is to have correct data, the internet and world wide web is anticipated by JetForm as above sited by the term web, Java is also anticipated in the above quoted cites of JetForm, filtering is a general form of verifying that is well known in the art and would be obvious because of its simple implementation and proven utility.

----- NEW CITATIONS -----

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

TIME LIMIT:

The time limit set for response to a Written Opinion may not be extended. 37 CFR 1.484(d). Any response received after the expiration of the time limit set in the Written Opinion will not be considered in preparing the International Preliminary Examination Report.

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

**NOTIFICATION OF RECEIPT
OF SEARCH COPY**

(PCT Rule 25.1)

To:
 TONI-JUNELL HERBERT
 SHANKS & HERBERT
 TRANSPOTOMAC PLAZA
 1033 N. FAIRFAX ST., SUITE 306
 ALEXANDRIA VA 22314

Date of mailing (day/month/year) **JUN 1 0 1998**

Applicant's or agent's file reference 0106-0001		IMPORTANT NOTIFICATION	
International application No. PCT/US98/09590	International filing date (day/month/year) 12 MAY 98	Priority date (day/month/year) 12 MAY 97	
Applicant KOZAM, MARC L.			

1. **Where the International Searching Authority and the receiving Office are not the same Office:**
 The applicant is hereby notified that the search copy of the international application was received by this International Searching Authority on the date indicated below.

Where the International Searching Authority and the receiving Office are the same Office:
 The applicant is hereby notified that the search copy of the international application was received on the date indicated below.

JUN 1 0 1998

(date of receipt)

2. **Time limit for establishment of international search report**
 The applicant is informed that the time limit for establishing the international search report is 3 months from the date of receipt indicated above or 9 months from the priority date, whichever time limit expires later.
3. A copy of this notification has been sent to the International Bureau and, where the first sentence of paragraph 1 applies, to the receiving Office.

Name and mailing address of the ISA/US Assistant Commissioner for Patents Box PCT Washington, D.C. 20231 Facsimile No.	Attn: ISA/US	Authorized officer <i>Hal Saunders</i> Telephone No. <i>703-305-3663</i>
--	--------------	---

TO

UNITED STATES DESIGNATED/ELECTED
OFFICE (DO/EO/US)TGNJ-JUNELL HERBERT
SHANKS & HERBERT
TRANSPOTOMAC PLAZA
1033 N. FAIRFAX ST., SUITE 306
ALEXANDRIA VA 22314NOTIFICATION OF STATUS OF
REQUIREMENTS UNDER 35 U.S.C.371

DATE OF MAILING

JUN 1 0 1998

FILE REFERENCE

0106-0001

IDENTIFICATION OF INTERNATIONAL APPLICATION

International Application Number	International Filing Date	Priority Date Claimed
PCT/US98/09590	12 MAY 98	12 MAY 97

Applicant for DO/EO/US

KOZAM, MARC L.

NOTIFICATION

The applicant is hereby advised that the U.S. Patent and Trademark Office in its capacity as ☐ Designated Office ☐ Elected Office has received the following items as of the date of mailing indicated above.

1. ☐ U.S. National fee [35 U.S.C.371 (c) (1)]
2. ☐ Oath of declaration [35 U.S.C.371 (c) (4)]
3. ☒ Copy of International application as filed [35 U.S.C.371 (c) (2)]
4. ☐ Translation of Application [35 U.S.C.371 (c) (2)]
5. ☐ Amendments under PCT Article 19 [35 U.S.C.371 (c) (3)]
6. ☐ Translation of PCT Article 19 Amendments [35 U.S.C.371 (c) (3)]
7. ☐ Search Report or Declaration under PCT Article 17(2) [35 U.S.C.371 (a)]
8. ☐ International Preliminary Examination Report and its Annexes, if any, under PCT Article 36(3) (a) [35 U.S.C.371 (a)]
9. ☐ Translation of Annexes to the International Preliminary Examination Report under PCT Article 36(3) (b) [35 U.S.C.371 (c) (5)]
10. ☐ Other items received:
☐ Assignment Document ☐ Prior Art Statement ☐ Preliminary Amendment
- A. ☐ Requirements for U.S. National processing have been met. Processing will commence
☐ at the expiration of the applicable time limit under either
☐ PCT Article 22 [35 U.S.C.371 (b)] or
☐ PCT Article 39 [35 U.S.C.371 (b)]
☐ on the date indicated below under the provisions of 35 U.S.C.371 (f)

U.S. NATIONAL SERIAL#

DATE UNDER 35 U.S.C.102(e)

DATE OF COMMENCEMENT OF
NATIONAL PROCESSING

All correspondence submitted after the date of commencement of U.S. National processing indicated above should refer to the U.S. National Serial Number and the appropriate U.S. National processing organization or Officer.

- B. ☐ As the above identified application has been accepted for U.S. National processing under the provisions of 35 U.S.C.371 (f) before expiration of the applicable time limit under ☐ PCT Article 22 ☐ PCT Article 39, applicant is reminded that
- ☐ Amendments under PCT Article 19 and/or
 - ☐ the International Preliminary Examination Report and its Annexes, if any, under PCT Article 36(3) (a), and (b)
- and any translation thereof, if applicable, must be submitted to the Patent and Trademark Office as soon as they are available.

INTERNATIONAL APPLICATION NUMBER

PCT/US98/09590

INTERNATIONAL FILING DATE

12 MAY 98

PRIORITY DATE CLAIMED

12 MAY 97

- C. ☒ In order that U.S. National processing may begin, certain items must be received by the DO/EO/US by the expiration of the applicable time limit under

☐ PCT Article 22 or

☐ PCT Article 39.

Specifically:

- ☒ 1. U.S. National Fee
- ☒ 2. Oath or Declaration
- ☐ 3. Copy of Application
- ☐ 4. Translation of Application
- ☒ 5. Amendments under PCT Article 19, if any
- ☐ 6. Translation of PCT Article 19 Amendments, if applicable
- ☐ 7. Search Report or PCT Article 17(2)(a) declaration
- ☐ 8. International Preliminary Examination Report and its Annexes, if any, under PCT Article 36(3)(a), if applicable
- ☐ 9. Translation of Annexes to the International Preliminary Examination Report under PCT Article 36(3)(b), if applicable

THE ABOVE CHECKED ITEMS MUST BE TIMELY RECEIVED TO AVOID ABANDONMENT OF THE APPLICATION. [35 U.S.C. 371(d)]

- D. Further information for the applicant:

THE ABOVE IDENTIFIED ITEMS ARE NEEDED FOR ENTRY INTO THE NATIONAL STAGE

A REMINDER ONLY

UNITED STATES DESIGNATED/ELECTED OFFICE

Address Only:

Commissioner of Patents and Trademarks

Box PCT

Washington, D.C. 20231

Authorized Officer

ATTN: DO/EO/US

Hol Saunders

UNITED STATES RECEIVING OFFICE(RO/US) FEE CODING AND RECORDING SHEET

☐ ADDL SHEETS

IDENTIFICATION OF THE INTERNATIONAL APPLICATION

INTERNATIONAL APPLICATION NUMBER

INTERNATIONAL FILING DATE

APPLICANT (Name)

PAYMENTS

REFUNDS

Payment on Filing				Deposit Account		Deposit Account		To Deposit Account		To Deposit Account		
Deposit Account	00	0000	DATE:	DATE:	DATE:	DATE:	DATE:	DATE:	DATE:	DATE:	DATE:	
<input type="checkbox"/> CASH/CHECK			<input type="checkbox"/> CASH/CHECK	<input type="checkbox"/> CASH/CHECK	<input type="checkbox"/> CASH/CHECK	<input type="checkbox"/> BY CHECK	<input type="checkbox"/> BY CHECK	<input type="checkbox"/> BY CHECK	<input type="checkbox"/> BY CHECK	<input type="checkbox"/> BY CHECK	<input type="checkbox"/> BY CHECK	
150												
151												
153												
800												
801												
802												
899												
566												
Total Paid:			Total Paid:	Total Paid:	Total Paid:	Total Refunded:	Total Refunded:	Total Refunded:	Total Refunded:	Total Refunded:	Total Refunded:	
150												
States Included for 882:			882:	882:								
States Included for 883:			883:	883:								

3/26/1998 KDUNCAH1 00000038 PCT/US98/09590

1	FD:150	240.00	OP
2	FD:153	450.00	OP
3	FD:800	455.00	OP
4	FD:899	945.00	OP
5	FD:566	15.00	OP

RO/US Authorization

RO/US Authorization

RO/US Authorization

RO/US Authorization

RO/US Authorization

TRANSMITTAL LETTER TO THE UNITED STATES RECEIVING OFFICE

Date	5-12-98
International Application No.	
Attorney Docket No.	0108-0008

I. Certification under 37 CFR 1.10 (if applicable)

Express Mail mailing number

Date of Deposit

I hereby certify that the application/correspondence attached hereto is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to Assistant Commissioner for Patents, Washington, D.C. 20231.

Signature of person mailing correspondence
--

Typed or printed name of person mailing correspondence
--

II. ☒ New International Application

TITLE	Method and Apparatus for the Centralized Collection of Geographically Distributed Data
-------	--

Earliest priority date (Day/Month/Year)
5-12-97

SCREENING DISCLOSURE INFORMATION: In order to assist in screening the accompanying international application for purposes of determining whether a license for foreign transmittal should and could be granted and for other purposes, the following information is supplied. (Note: check as many boxes as apply):

- A. ☐ The invention disclosed was not made in the United States.
- B. ☐ There is no prior U.S. application relating to this invention.
- C. ☒ The following prior U.S. application(s) contain subject matter which is related to the invention disclosed in the attached international application. (NOTE: priority to these applications may or may not be claimed on form PCT/RO/101 (Request) and this listing does not constitute a claim for priority).

application no.	60/046,214	filed on	5-12-97
application no.		filed on	

- D. ☐ The present international application ☐ is identical ☐ contains less subject matter than that found in the prior U.S. application(s) identified in paragraph C.
- E. ☒ The present international application ☒ contains additional subject matter not found in the prior U.S. application(s) identified in paragraph C. above. The additional subject matter is found on pages 2, 3, 4, 5, 7, 8, 9-16 and ☒ DOES NOT ALTER ☐ MIGHT BE CONSIDERED TO ALTER the general nature of the invention in a manner which would require the U.S. application to have been made available for inspection by the appropriate defense agencies under 35 U.S.C. 181 and 37 CFR 5.1. See 37 CFR 5.15

III. ☐ A Response to an Invitation from the RO/US. The following document(s) is (are) enclosed:

- A. ☐ A Request for An Extension of Time to File a Response
- B. ☐ A Power of Attorney (General or Regular)
- C. ☐ Replacement pages:

pages		of the request (PCT/RO/101)	pages		of the figures
pages		of the description	pages		of the abstract
pages		of the claims			

- D. ☐ Submission of Priority Documents

Priority document		Priority document	
-------------------	--	-------------------	--

- E. ☐ Fees as specified on attached Fee Calculation sheet form PCT/RO/101 annex

IV. ☐ A Request for Rectification under PCT 91 ☐ A Petition ☐ A Sequence Listing Diskette

V. ☐ Other (please specify):

The person signing this form is the:

<input type="checkbox"/> Applicant	Toni-Junell Herbert
<input checked="" type="checkbox"/> Attorney/Agent (Reg. No.) 34,348	Typed name of signer
<input type="checkbox"/> Common Representative	Signature

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference
(if desired) (12 characters maximum) 0106-0001

Box No. I TITLE OF INVENTION

Method and Apparatus for the Centralized Collection of Geographically Distributed Data

Box No. II APPLICANT

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (i.e. country) of residence if no State of residence is indicated below.)

Kozam, Marc L.
13245 Glenhill Road
Silver Spring, Maryland 20904
United States of America

☒ This person is also inventor.

Telephone No.

Facsimile No.

Teleprinter No.

State (i.e. country) of nationality:
US

State (i.e. country) of residence:
US

This person is applicant for the purposes of: ☒ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (i.e. country) of residence if no State of residence is indicated below.)

Korman, Louis Y.
11424 Cushman Road
Rockville, Maryland 20852
United States of America

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only (if this check-box is marked, do not fill in below.)

State (i.e. country) of nationality:
US

State (i.e. country) of residence:
US

This person is applicant for the purposes of: ☒ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

☐ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE: OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:

☒ agent ☐ common representative

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

Herbert, Toni-June
SHANKS & HERBERT
TransPotomac Plaza
1033 N. Fairfax St., Suite 306
Alexandria, Virginia 22314
United States of America

Telephone No.
703-683-3600

Facsimile No.
703-683-2675

Teleprinter No.

☐ Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Box No. V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) (mark the applicable check-boxes: at least one must be marked):

Regional Patent

- ☐ AP ARIPO Patent: GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, SD Sudan, SZ Swaziland, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
- ☐ EA Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ EP European Patent: AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☐ OA OAPI Patent: BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line)

National Patent (if other kind of protection or treatment desired, specify on dotted line):

- | | |
|---|---|
| <input type="checkbox"/> AL Albania | <input type="checkbox"/> LT Lithuania |
| <input type="checkbox"/> AM Armenia | <input type="checkbox"/> LU Luxembourg |
| <input type="checkbox"/> AT Austria | <input type="checkbox"/> LV Latvia |
| <input checked="" type="checkbox"/> AU Australia | <input type="checkbox"/> MD Republic of Moldova |
| <input type="checkbox"/> AZ Azerbaijan | <input type="checkbox"/> MG Madagascar |
| <input type="checkbox"/> BA Bosnia and Herzegovina | <input type="checkbox"/> MK The former Yugoslav Republic of Macedonia |
| <input type="checkbox"/> BB Barbados | |
| <input type="checkbox"/> BG Bulgaria | <input type="checkbox"/> MN Mongolia |
| <input type="checkbox"/> BR Brazil | <input type="checkbox"/> MW Malawi |
| <input type="checkbox"/> BY Belarus | <input type="checkbox"/> MX Mexico |
| <input checked="" type="checkbox"/> CA Canada | <input type="checkbox"/> NO Norway |
| <input type="checkbox"/> CH and LI Switzerland and Liechtenstein | <input checked="" type="checkbox"/> NZ New Zealand |
| <input type="checkbox"/> CN China | <input type="checkbox"/> PL Poland |
| <input type="checkbox"/> CU Cuba | <input type="checkbox"/> PT Portugal |
| <input type="checkbox"/> CZ Czech Republic | <input type="checkbox"/> RO Romania |
| <input type="checkbox"/> DE Germany | <input checked="" type="checkbox"/> RU Russian Federation |
| <input type="checkbox"/> DK Denmark | <input type="checkbox"/> SD Sudan |
| <input type="checkbox"/> EE Estonia | <input type="checkbox"/> SE Sweden |
| <input type="checkbox"/> ES Spain | <input type="checkbox"/> SG Singapore |
| <input type="checkbox"/> FI Finland | <input type="checkbox"/> SI Slovenia |
| <input type="checkbox"/> GB United Kingdom | <input type="checkbox"/> SK Slovakia |
| <input type="checkbox"/> GE Georgia | <input type="checkbox"/> SL Sierra Leone |
| <input type="checkbox"/> GH Ghana | <input type="checkbox"/> TJ Tajikistan |
| <input type="checkbox"/> GM Gambia | <input type="checkbox"/> TM Turkmenistan |
| <input type="checkbox"/> GW Guinea-Bissau | <input type="checkbox"/> TR Turkey |
| <input type="checkbox"/> HU Hungary | <input type="checkbox"/> TT Trinidad and Tobago |
| <input type="checkbox"/> ID Indonesia | <input type="checkbox"/> UA Ukraine |
| <input checked="" type="checkbox"/> IL Israel | <input type="checkbox"/> UG Uganda |
| <input type="checkbox"/> IS Iceland | <input checked="" type="checkbox"/> US United States of America |
| <input checked="" type="checkbox"/> JP Japan | |
| <input type="checkbox"/> KE Kenya | <input type="checkbox"/> UZ Uzbekistan |
| <input type="checkbox"/> KG Kyrgyzstan | <input type="checkbox"/> VN Viet Nam |
| <input type="checkbox"/> KP Democratic People's Republic of Korea | <input type="checkbox"/> YU Yugoslavia |
| <input checked="" type="checkbox"/> KR Republic of Korea | <input type="checkbox"/> ZW Zimbabwe |
| <input type="checkbox"/> KZ Kazakhstan | |
| <input type="checkbox"/> LC Saint Lucia | |
| <input type="checkbox"/> LK Sri Lanka | |
| <input type="checkbox"/> LR Liberia | |
| <input type="checkbox"/> LS Lesotho | |

Check-boxes reserved for designating States (for the purposes of a national patent) which have become party to the PCT after issuance of this sheet:

In addition to the designations made above, the applicant also makes under Rule 4.9(b) all designations which would be permitted under the PCT except the designation(s) of the applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation of a designation consists of the filing of a notice specifying that designation and the payment of the designation and confirmation fees. Confirmation must reach the receiving Office within the 15-month time limit.)

Supplemental Box *If the Supplemental Box is not used, this sheet need not be included in the request.*

Use this box in the following cases:

1. *If, in any of the Boxes, the space is insufficient to furnish all the information:*

in particular:

(i) *if more than two persons are involved as applicants and/or inventors and no "continuation sheet" is available:*

in such case, write "Continuation of Box No. ..." (indicate the number of the Box) and furnish the information in the same manner as required according to the captions of the Box in which the space was insufficient;

in such case, write "Continuation of Box No. III" and indicate for each additional person the same type of information as required in Box No. III. The country of the address indicated in this Box is the applicant's State (i.e. country) of residence if no State of residence is indicated below:

(ii) *if, in Box No. II or in any of the sub-boxes of Box No. III, the indication "the States indicated in the Supplemental Box" is checked:*

in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the applicant(s) involved and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is applicant:

(iii) *if, in Box No. II or in any of the sub-boxes of Box No. III, the inventor or the inventor/applicant is not inventor for the purposes of all designated States or for the purposes of the United States of America:*

in such case write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the inventor(s) and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is inventor:

(iv) *if, in addition to the agent(s) indicated in Box No. IV, there are further agents:*

in such case, write "Continuation of Box No. IV" and indicate for each further agent the same type of information as required in Box No. IV;

(v) *if, in Box No. V, the name of any State (or OAPI) is accompanied by the indication "parent of addition," or "certificate of addition," or if, in Box No. V, the name of the United States of America is accompanied by an indication "Continuation" or "Continuation-in-part":*

in such case, write "Continuation of Box No. V" and the name of each State involved (or OAPI), and after the name of each such State (or OAPI), the number of the parent title or parent application and the date of grant of the parent title or filing of the parent application:

(vi) *if there are more than three earlier applications whose priority is claimed:*

in such case, write "Continuation of Box No. VI" and indicate for each additional earlier application the same type of information as required in Box No. VI.

2. *If the applicant claims, in respect of any designated Office, the benefits of provisions of the national law concerning non-prejudicial disclosures or exceptions to*

in such case, write "Statement Concerning Non-Prejudicial Disclosures or Exceptions to Lack of Novelty" and furnish that statement below.

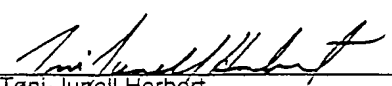
Lynt, Christopher H.
SHANKS & HERBERT
TransPotomac Plaza
1033 N. Fairfax St., Suite 306
Alexandria, Virginia 22314
United States of America

Telephone: 703-683-3600
Facsimile: 703-683-9875

and

Shanks, Mark R.
SHANKS & HERBERT
TransPotomac Plaza
1033 N. Fairfax St., Suite 306
Alexandria, Virginia 22314
United States of America

Telephone: 703-683-3600
Facsimile: 703-683-9875

Box No. VI PRIORITY CLAIM		Further priority claims are indicated in the Supplemental Box <input type="checkbox"/>	
The priority of the following earlier application(s) is hereby claimed:			
Country (in which, or for which, the application was filed)	Filing Date (day/month/year)	Application No.	Office of filing (only for regional or international application)
item (1) US	12 May 1997 (12-05-97)	60/046,214	
item (2)	()		
item (3)	()		
Mark the following check-box if the certified copy of the earlier application is to be issued by the Office which for the purposes of the present international application is the receiving Office (a fee may be required):			
<input checked="" type="checkbox"/> The receiving Office is hereby requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) identified above as item(s): 1			
Box No. VII INTERNATIONAL SEARCHING AUTHORITY			
Choice of International Searching Authority (ISA) (If two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used): ISA/US			
Earlier search Fill in where a search (international, international-type or other) by the International Searching Authority has already been out or requested and the Authority is now requested to base the international search, to the extent possible, on the results of that earlier search. Such search or request either by reference to the relevant application (or the translation thereof) or by reference to the search request: Country (or regional Office): Date (day/month/year): Number:			
Box No. VIII CHECK LIST			
This international application contains the following number of sheets:		This international application is accompanied by the item(s) marked below:	
1. request : 4 sheets	2. description : 10 sheets	1. <input type="checkbox"/> separate signed power of attorney	5. <input checked="" type="checkbox"/> fee calculation sheet
3. claims : 5 sheets	4. abstract : 1 sheet	2. <input checked="" type="checkbox"/> copy of general power of attorney	6. <input type="checkbox"/> separate indications concerning deposited microorganisms
5. drawings : 1 sheet	Total : 21 sheets	3. <input type="checkbox"/> statement explaining lack of signature	7. <input type="checkbox"/> nucleotide and/or amino acid sequence listing (diskette)
		4. <input type="checkbox"/> priority document(s) identified in Box No. VI as item(s):	8. <input checked="" type="checkbox"/> other (specify): transmittal letter
Figure No. _____ of the drawings (if any) should accompany the abstract when it is published.			
Box No. IX SIGNATURE OF APPLICANT OR AGENT			
Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).			
 Toni-Jurell Herbert Agent For Applicant			

For receiving Office use only	
1. Date of actual receipt of the purported international application:	2. Drawings:
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:	<input type="checkbox"/> received:
4. Date of timely receipt of the required corrections under PCT Article 11(2):	<input type="checkbox"/> not received:
5. International Searching Authority specified by the applicant: ISA/	6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid

For International Bureau use only	
Date of receipt of the record copy by the International Bureau:	

PCT

FEE CALCULATION SHEET Annex to the Request

For receiving Office use only

International application No.

Applicant's or agent's
file reference

0106-0001

Date stamp of the receiving Office

Applicant
Marc L. Kozam & Louis Y. Korman

CALCULATION OF PRESCRIBED FEES

1. TRANSMITTAL FEE 240.00 **T**

2. SEARCH FEE 450.00 **S**

International search to be carried out by ISA/US

(If two or more International Searching Authorities are competent in relation to the international application, indicate the name of the Authority which is chosen to carry out the international search.)

3. INTERNATIONAL FEE

Basic Fee

The international application contains 21 sheets.

first 30 sheets 455.00 **b₁**

0 x = 0.00 **b₂**

remaining sheets additional amount

Add amounts entered at **b₁** and **b₂** and enter total at **B** 455.00 **B**

Designation Fees

The international application contains 9 designations.

9 x 105.00 = 945.00 **D**

number of designation fees amount of designation fee payable (maximum 11)

Add amounts entered at **B** and **D** and enter total at **I** 1,400.00 **I**

(Applicants from certain States are entitled to a reduction of 75% of the international fee. Where the applicant is (or all applicants are) so entitled, the total to be entered at **I** is 25% of the sum of the amounts entered at **B** and **D**)

4. FEE FOR PRIORITY DOCUMENT 15.00 **P**

5. TOTAL FEES PAYABLE

Add amounts entered at **T**, **S**, **I** and **P**, and enter total in the TOTAL box 2,105.00

TOTAL

☐ The designation fees are not paid at this time.

MODE OF PAYMENT

☐ authorization to charge
deposit account (see below)

☐ bank draft

☐ coupons

☒ cheque

☐ cash

☐ other (specify):

☐ postal money order

☐ revenue stamps

DEPOSIT ACCOUNT AUTHORIZATION (this mode of payment may not be available at all receiving Offices)

The RO/ ☐ is hereby authorized to charge the total fees indicated above to my deposit account.

☐ is hereby authorized to charge any deficiency or credit any overpayment in the total fees indicated above to my deposit account.

☐ is hereby authorized to charge the fee for preparation and transmittal of the priority document to the International Bureau of WIPO to my deposit account.

Deposit Account Number

Date (day/month/year)

Signature

09/423378

PCT/US98/09590

0106-0001

20. The following fees are submitted.:

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :

- ☐ Search Report has been prepared by the EPO or JPO \$840.00
- ☒ International preliminary examination fee paid to USPTO (37 CFR 1.482) \$670.00
- ☐ No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)) \$760.00
- ☐ Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$970.00
- ☐ International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) \$96.00

ENTER APPROPRIATE BASIC FEE AMOUNT =

\$670.00

Surcharge of \$130.00 for furnishing the oath or declaration later than months from the earliest claimed priority date (37 CFR 1.492 (e)). ☐ 20 ☐ 30

\$0.00

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE
Total claims	25 - 20 =	5	x \$18.00
Independent claims	4 - 3 =	1	x \$78.00

\$90.00

\$78.00

Multiple Dependent Claims (check if applicable). ☐

\$0.00

TOTAL OF ABOVE CALCULATIONS =

\$838.00

Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28) (check if applicable). ☒

\$419.00

SUBTOTAL =

\$419.00

Processing fee of \$130.00 for furnishing the English translation later than months from the earliest claimed priority date (37 CFR 1.492 (f)). ☐ 20 ☐ 30 +

\$0.00

TOTAL NATIONAL FEE =

\$419.00

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable). ☐

\$0.00

TOTAL FEES ENCLOSED =

\$419.00

Amount to be:
refunded
charged

\$

\$

- ☒ A check in the amount of \$419.00 to cover the above fees is enclosed.
- ☐ Please charge my Deposit Account No. in the amount of to cover the above fees.
A duplicate copy of this sheet is enclosed.
- ☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 50-0622 A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

Toni-Junell Herbert
SHANKS & HERBERT
TransPotomac Plaza
1033 North Fairfax Street, Suite 306
Alexandria, VA 22314
United States of America
(703) 683-3600
(703) 683-9875 (facsimile)

SIGNATURE

Toni-Junell Herbert

NAME

34,348

REGISTRATION NUMBER

DATE

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/09590

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : GO6F 17/30

US CL : 707/4,10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 707/1,3,4,10; 395/200.33

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X — Y	US 3,576,433 A (LEE III ET AL) 27 APRIL 1971, ABSTRACT, COL 1, LINE 41-COL. 2 LINE 65.	25 — 1-24
X — Y	US 4,868,866 A (WILLIAMS JR.) 19 SEPTEMBER 1989, COL. 3, LINES 44-61	25 — 1-24
X — Y	US 5,179,660 A (DEVANY ET AL) 12 JANUARY 1993, COL. 4, LINES 11-60, AND COL. 5, LINES 18-43.	25 — 1-24
Y	"JETFORM(R) ANNOUNCES FIRST JAVA(TM)-BASED ELECTRONIC FORMS SOLUTION" JETFORM CORPORATION PRESS RELEASE HTTP://WWW.JETFORM.COM/PRESSROOM/1996/PRIR961022.HTML, PP 1-3, ESPECIALLY PAGES 1 AND 2.	1-24

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"B" earlier document published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"G" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
20 OCTOBER 1998

Date of mailing of the international search report
12 NOV 1998

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231
Facsimile No. (703) 305-3230

Authorized officer
JACK M. CHOULES
Telephone No. (703) 305-9840

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US98/09590

B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

APS, Dialog, NPL Science Server, AltaVista on Internet,
valid, invalid, verify, validity check, data, update, input collect, client, server, central, remote www, world wide web,
internet, wide area network.

PATENT COOPERATION TREATY

RECEIVED

JAN 25 1999

From the INTERNATIONAL BUREAU

To:

HERBERT, Toni-Junell
Shanks & Herbert
Suite 306
TransPotomac Plaza
1033 N. Fairfax Street
Alexandria, VA 22314
ÉTATS-UNIS D'AMÉRIQUE

SHANKS & HERBERT

PCT

**INFORMATION CONCERNING ELECTED
OFFICES NOTIFIED OF THEIR ELECTION**

(PCT Rule 61.3)

Date of mailing (day/month/year) 11 January 1999 (11.01.99)		
Applicant's or agent's file reference 0106-0001		IMPORTANT INFORMATION
International application No. PCT/US98/09590	International filing date (day/month/year) 12 May 1998 (12.05.98)	
Priority date (day/month/year) 12 May 1997 (12.05.97)		
Applicant KOZAM, Marc, L. et al		

1. The applicant is hereby informed that the International Bureau has, according to Article 31(7), notified each of the following Offices of its election:

EP : AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE
National : AU, CA, IL, JP, KR, NZ, RU, US


2. The following Offices have waived the requirement for the notification of their election; the notification will be sent to them by the International Bureau only upon their request:

None

3. The applicant is reminded that he must enter the "national phase" **before the expiration of 30 months from the priority date** before each of the Offices listed above. This must be done by paying the national fee(s) and furnishing, if prescribed, a translation of the international application (Article 39(1)(a)), as well as, where applicable, by furnishing a translation of any annexes of the international preliminary examination report (Article 36(3)(b) and Rule 74.1).

Some offices have fixed time limits expiring later than the above-mentioned time limit. For detailed information about the applicable time limits and the acts to be performed upon entry into the national phase before a particular Office, see Volume II of the PCT Applicant's Guide.

The entry into the European regional phase is postponed until 31 months from the priority date for all States designated for the purposes of obtaining a European patent.

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No. (41-22) 740.14.35</p>	<p>Authorized officer:</p> <p>Lazar Joseph Panakal </p> <p>Telephone No. (41-22) 338.83.38</p>
---	---

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

RECEIVED
DEI:
PCT SHANKS & HERBERT

To:

TONI-JUNELL HERBERT
SHANKS & HERBERT
TRANSPOTOMAC PLAZA
1033 N. FAIRFAX ST., SUITE 306
ALEXANDRIA VA 22314

NOTIFICATION OF RECEIPT
OF DEMAND

(PCT Rule 61.1(b), first sentence
and Administrative Instructions, Section 601)

Date of mailing
(day/month/year)

28 DEC 1998

Applicant's or agent's file reference
0106-0001

IMPORTANT NOTIFICATION

International application No.
PCT/US98/09590

International filing date (day/month/year)
12 MAY 98

Priority date (day/month/year)
12 MAY 97

Applicant

KOZAM, MARC L.

1. The applicant is hereby notified that this International Preliminary Examining Authority considers the following date as the date of receipt of the demand for international preliminary examination of the international application:

11 DEC 1998

2. This date of receipt is:

- ☒ the actual date of receipt of the demand.
☐ the date on which the proper corrections to the demand were timely received.

3. ☐ This date is **AFTER** the expiration of 19 months from the priority date.

Attention: The election(s) made in the demand does (do) not have the effect of postponing the commencement of the national phase until 30 months from the priority date (or later in some Offices) (Article 39(1)). Therefore, the acts for entry into the national phase must be performed within 20 months from the priority date (or later in some Offices) (Article 22).

For details, see Annex B to Form PCT/IB/301 sent by the International Bureau and Volume II of the PCT Applicant's Guide.

- ☐ This notification confirms the information given in person or by telephone on:

4. Only where paragraph 3 applies, a copy of this notification has been sent to the International Bureau.

Name and mailing address of the IPEA/US
Assistant Commissioner for Patents
Box PCT
Washington, D.C. 20231
Facsimile No.

Attn: IPEA/US

Authorized officer

Clara Sellers

FOR HALLET SAUNDERS

Telephone No.

(703) 305-3663

From the RECEIVING OFFICE

PCT

To:

TONI-JUNELL HERBERT
SHANKS & HERBERT
TRANSPOTOMAC PLAZA
1033 N. FAIRFAX ST., SUITE 306
ALEXANDRIA VA 22314

INVITATION TO CORRECT DEFECTS IN
THE INTERNATIONAL APPLICATION

(PCT Articles 3(4)(i) and 14(1) and Rule 26)

Date of mailing
(day/month/year)

JUN 10 1998

Applicant's or agent's file reference
0106-0001REPLY DUE within ONE MONTH from
the above date of mailingInternational application No.
PCT/US98/09590International filing date
(day/month/year) 12 MAY 98Applicant
KOZAM, MARC L.

The applicant is hereby invited, within the time limit indicated above, to correct the defects in the international application, which are specified on the attached

☐ Annex A☐ Annex B☒ Annex C

Additional observations (if necessary):

HOW TO CORRECT THE DEFECTS?

Correction must be submitted by filing a replacement sheet embodying the correction and a letter accompanying the replacement sheet, which shall draw attention to the difference between the replaced sheet and the replacement sheet. A correction may be stated in a letter only if it is of such a nature that it can be transferred from the letter to the record copy without adversely affecting the clarity and direct reproducibility of the sheet onto which the correction is to be transferred (Rule 26.4(a)).

ATTENTION

Failure to correct the defects will result in the international application being considered withdrawn by this receiving Office (see Rule 26.5 for further details).

A copy of this invitation and any attachments has been sent to the International Bureau

☐ and the International Searching Authority.

Name and mailing address of the receiving Office

Assistant Commissioner for Patents

Box PCT
Washington, D.C. 20231

Attn: RO/US

Facsimile No.

Authorized officer

Zol Saunders

Telephone No.

703-305-3663

The physical requirements of the international application are not complied with to the extent which is necessary for the purpose of a reasonably uniform international publication, as specified below (Rule 11). The receiving Office has found the following defects in the presentation of the drawings of the international application:

I. In regard to the sheets containing drawings:

- a. ☐ the sheets do not admit of direct reproduction.
- b. ☐ the sheets are not free from creases, cracks, folds.
- c. ☐ one side of the sheets is not left unused.
- d. ☐ the paper of the sheets is not flexible/strong/white/smooth/non-shiny/durable.
- e. ☐ the drawings do not commence on a new sheet.
- f. ☐ the sheets are not connected as prescribed (Rule 11.4(b)).
- g. ☐ the sheets are not A4 size (29.7cm x 21cm).
- h. ☒ the minimum margins on the sheets are not as prescribed (top: 2.5cm; left side: 2.5cm; right side: 1.5cm; bottom: 1cm). *fx*
- i. ☐ the file reference number indicated on the sheets does not appear in the left-hand corner of the sheets, within 1.5 cm of the top of the sheets.
- j. ☐ the file reference number exceeds the maximum of 12 characters.
- k. ☐ the sheets are not free from frames around usable or used surfaces.
- l. ☐ the sheets are not numbered in consecutive Arabic numerals (e.g. 1/3, 2/3, 3/3).
- m. ☐ the sheet numbers are not centered at the top or bottom of the sheets.
- n. ☐ the sheet numbers are in the margin (see h. above for the size of the margins).
- o. ☐ the sheets contain alterations/overwritings/interlineations/too many erasures.
- p. ☐ the sheets contain photocopy marks.

II. The drawings (Rule 11.13):

- a. ☐ do not admit of direct reproduction.
- b. ☐ contain unnecessary text matter.
- c. ☐ contain words so placed as to prevent translation without interference with lines thereof.
- d. ☒ are not executed in durable black color; the lines are not uniformly thick and well-defined *(rough)*
- e. ☐ contain cross-sections not properly hatched.
- f. ☐ would not be properly distinguishable in reduced reproduction.
- g. ☐ contain scales not represented graphically.
- h. ☒ contain numbers, letters and reference lines lacking simplicity and clarity.
- i. ☐ contain lines drafted without the aid of drafting instruments.
- j. ☐ contain disproportionate elements of a figure not necessary for clarity.
- k. ☐ contain numbers and letters of height less than 0.32 cm.
- l. ☐ contain letters not conforming to the Latin, and where customary, Greek alphabets.
- m. ☐ contain figures on two or more sheets which form a single complete figure but which are not able to be assembled without concealing parts thereof.
- n. ☐ contain figures which are not properly arranged and clearly separated.
- o. ☐ contain different figures not numbered in consecutive Arabic numerals.
- p. ☐ contain different figures not numbered independent of the numbering of the sheets.
- q. ☐ are not restricted to reference signs mentioned in the description.
- r. ☐ do not contain reference signs that are mentioned in the description.
- s. ☐ Photographs cannot be presented unless direct reproduction has clarity.

New ag fig 1

From the RECEIVING OFFICE

PCTNOTIFICATION OF THE INTERNATIONAL
APPLICATION NUMBER AND OF THE
INTERNATIONAL FILING DATE

(PCT Rule 20.5(c))

To:

TONI-JUNELL HERBERT
SHANKS & HERBERT
TRANSPOTOMAC PLAZA
1033 N. FAIRFAX ST., SUITE 306
ALEXANDRIA VA 22314Date of mailing
(day/month/year)

JUN 10 1998

Applicant's or agent's file reference
0106-0001**IMPORTANT NOTIFICATION**

International application No.

PCT/US98/09590

International filing date (day/month/year)

12 MAY 98

Priority date (day/month/year)

12 MAY 97

Applicant KOZAM, MARC L.

Title of the invention METHOD AND APPARATUS FOR THE CENTRALIZED
COLLECTION OF GEOGRAPHICALLY DISTRIBUTED DATA

1. The applicant is hereby notified that the international application has been accorded the international application number and the international filing date indicated above.

2. The applicant is further notified that the record copy of the international application:



was transmitted to the International Bureau on

JUN 10 1998



has not yet been transmitted to the International Bureau for the reason indicated below and a copy of this notification has been sent to the International Bureau**.



because the necessary national security clearance has not yet been obtained.



because (reason to be specified):

* The International Bureau monitors the transmittal of the record copy by the receiving Office and will notify the applicant (with Form PCT/IB/301) of its receipt. Should the record copy not have been received by the expiration of 14 months from the priority date, the International Bureau will notify the applicant (Rule 22.1(c)).

3. FOREIGN TRANSMITTAL LICENSE INFORMATION

Completed by:



Additional license for foreign transmittal not required. This subject matter is covered by a license already granted on the equivalent U.S. national application. Refer to that license for information concerning its scope.



License for foreign transmittal not required. 37 CFR 5.11(e)(1) or 37 CFR 5.11(e)(2). However, a license may be required for additional subject matter. See 37 CFR 5.15(b).

Foreign transmittal license granted. 35 U.S.C. 184; 37 CFR 5.11 on 5-29-98 :
(date)

37 CFR 5.15(a)



37 CFR 5.15(b)

Name and mailing address of the receiving Office

Assistant Commissioner for Patents

Box PCT

Washington, D.C. 20231

Facsimile No.

Attn: RO/US

Authorized officer

Hal Saunders

Telephone No.

703-305-3663

The demand must be filed directly with the competent International Preliminary Examining Authority or, if two or more Authorities are with the one chosen by the applicant. The full name or two-letter code of that Authority may be indicated by the applicant on the line

IPEA/ US

PCT

CHAPTER II

DEMAND

under Article 31 of the Patent Cooperation Treaty:
The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty and hereby elects all eligible States (except where otherwise indicated).

For International Preliminary Examining Authority use only

Identification of IPEA	Date of receipt of DEMAND
------------------------	---------------------------

Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION		Applicant's or agent's file reference 0106-0001
International application No. UPCT/US98/09590	International filing date (day/month/year) 12-May-1998 (12-05-98)	(Earliest) Priority date (day/month/year) 12-May-1997 (12-05-97)

Title of invention
Method and Apparatus for the Centralized Collection of Geographically Distributed Data

Box No. II APPLICANT(S)

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) Kozam, Marc L. 13245 Glenhill Road Silver Spring, Maryland 20904 United States of America	Telephone No.:
	Facsimile No.:
	Teleprinter No.:

State (that is, country) of nationality:
US

State (that is, country) of residence:
US

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

Korman, Louis Y.
11424 Cushman Road
Rockville, Maryland 20852
United States of America

State (that is, country) of nationality:
US

State (that is, country) of residence:
US

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

State (that is, country) of nationality:

State (that is, country) of residence:

☐ Further applicants are indicated on a continuation sheet.

Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The following person is ☒ agent ☐ common representative
 and ☒ has been appointed earlier and represents the applicant(s) also for international preliminary examination.
☐ is hereby appointed and any earlier appointment of (an) agent(s) /common representative is hereby revoked.
☐ is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to the agent(s)/common representative appointed earlier.

Name and address: *(Family name followed by given name; for a legal entity, full official
The address must include postal code and name of country.)*

Herbert, Toni-Junell Lynt, Christopher H. Shanks, Mark R.

The above all of:

SHANKS & HERBERT

TransPotomac Plaza

1033 North Fairfax Street, Suite 306

Alexandria, Virginia 22314

United States of America

Telephone No.:

703-683-3600

Facsimile No.:

703-683-9875

Teleprinter No.:

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION**Statement concerning amendments:***

1. The applicant wishes the international preliminary examination to start on the basis of:

☒ the international application as originally filed.

the description ☐ as originally filed
☐ as amended under Article 34

the claims ☐ as originally filed
☐ as amended under Article 19 (together with any accompanying statement)
☐ as amended under Article 34

the drawings ☐ as originally filed
☐ as amended under Article 34

2. ☐ The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.

3. ☐ The applicant wishes the start of the international preliminary examination to be postponed until the expiration of 20 months from the priority date unless the International Preliminary Examining Authority receives a copy of any amendments made under Article 19 or a notice from the applicant that he does not wish to make such amendments (Rule 69.1(d)). *(This check-box may be marked only where the time limit under Article 19 has not yet expired.)*

* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

Language for the purposes of international preliminary examination: English

☒ which is the language in which the international application was filed.
☐ which is the language of a translation furnished for the purposes of international search.
☐ which is the language of publication of the international application.
☐ which is the language of the translation (to be) furnished for the purposes of international preliminary examination.

Box No. V ELECTION OF STATES

The applicant hereby elects all eligible States *(that is, all States which have been designated and which are bound by Chapter II of the PCT)*

excluding the following States which the applicant wishes not to elect:

Box No. VI CHECK LIST

The demand is accompanied by the following elements, in the language referred to in Box No. IV, for the purposes of international preliminary examination:

- | | | |
|---|---|--------|
| 1. translation of international application | : | sheets |
| 2. amendments under Article 34 | : | sheets |
| 3. copy (or where required, translation) of amendments under Article 19 | : | sheets |
| 4. copy (or, where required, translation) of statement under Article 19 | : | sheets |
| 5. letter | : | sheets |
| 6. other (<i>specify</i>) | : | sheets |

For International Preliminary Examining Authority use only

received	not received
----------	--------------

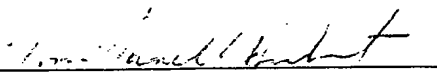
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

The demand is also accompanied by the item(s) marked below:

- | | |
|--|---|
| 1. <input checked="" type="checkbox"/> fee calculation sheet | 4. <input type="checkbox"/> statement explaining lack of signature |
| 2. <input type="checkbox"/> separate signed power of attorney | 5. <input type="checkbox"/> nucleotide and or amino acid sequence listing in computer readable form |
| 3. <input type="checkbox"/> copy of general power of attorney; reference number, if any: | 6. <input checked="" type="checkbox"/> other (<i>specify</i>): check, postcard |

Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).


Toni-Junell Herbert
Agent for Applicants

For International Preliminary Examining Authority use only

1. Date of actual receipt of DEMAND:

2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b):

3. ☐ The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply.

☐ The applicant has been informed accordingly.

4. ☐ The date of receipt of the demand is WITHIN the period of 19 months from the priority date as extended by virtue of Rule 80.5.

5. ☐ Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82.

For International Bureau use only

Demand received from IPEA on:

PCT

FEE CALCULATION SHEET

Annex to the Demand for international preliminary examination

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">International application No.</td> <td style="width: 50%;">PCT/US98/09590</td> </tr> <tr> <td>Applicant's or agent's file reference</td> <td>0106-0001</td> </tr> </table>	International application No.	PCT/US98/09590	Applicant's or agent's file reference	0106-0001	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="height: 40px; vertical-align: top;">For International Preliminary Examining Authority use only</td> </tr> <tr> <td style="height: 40px; vertical-align: top;">Date stamp of the IPEA</td> </tr> </table>	For International Preliminary Examining Authority use only	Date stamp of the IPEA
International application No.	PCT/US98/09590						
Applicant's or agent's file reference	0106-0001						
For International Preliminary Examining Authority use only							
Date stamp of the IPEA							
Applicant Kozam, et al.							
Calculation of prescribed fees							
1. Preliminary examination fee	490.00 P						
2. Handling fee <i>(Applicants from certain States are entitled to a reduction of 75% of the handling fee. Where the applicant is (or all applicants are) so entitled, the amount to be entered at H is 25% of the handling fee.)</i>	162.00 H						
3. Total of prescribed fees Add the amounts entered at P and H and enter total in the TOTAL box	<div style="border: 1px solid black; padding: 2px; display: inline-block;">652.00</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">TOTAL</div>						
Mode of Payment							
<input type="checkbox"/> authorization to charge deposit account with the IPEA (see below)	<input type="checkbox"/> cash						
<input checked="" type="checkbox"/> cheque	<input type="checkbox"/> revenue stamps						
<input type="checkbox"/> postal money order	<input type="checkbox"/> coupons						
<input type="checkbox"/> bank draft	<input type="checkbox"/> other (specify):						
Deposit Account Authorization <i>(this mode of payment may not be available at all IPEAs)</i> The IPEA/ <u>US</u> <input type="checkbox"/> is hereby authorized to charge the total fees indicated above to my deposit account. <input checked="" type="checkbox"/> <i>(this check-box may be marked only if the conditions for deposit accounts of the IPEA so permit)</i> is hereby authorized to charge any deficiency or credit any overpayment in the total fees indicated above to my deposit account.							
50-0622	11-December-1998						
Deposit Account Number	Date (day/month/year)						
<div style="text-align: right;"> Signature </div>							

RECEIVED

PATENT COOPERATION TREATY

NOV 16 1998

From the INTERNATIONAL SEARCHING AUTHORITY

SHANKS & HERBERT


PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT
OR THE DECLARATION

(PCT Rule 44.1)

To: TONI-JUNELL HERBERT SHANKS & HERBERT TRANSPOTOMAC PLAZA 1033 N. FAIRFAX ST., SUITE 306 ALEXANDRIA VA 22314		Date of Mailing (day/month/year) 12 NOV 1998
Applicant's or agent's file reference 0106-0001		FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No. PCT/US98/09590		International filing date (day/month/year) 12 MAY 1998
Applicant KOZAM <i>MARC</i>		

1. ☒ The applicant is hereby notified that the international search report has been established and is transmitted herewith.
Filing of amendments and statement under Article 19:
 The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):
- When?** The time limit for filing such amendments is normally 2 months from the date of transmittal of the international search report; however, for more details, see the notes on the accompanying sheet.
- Where?** Directly to the International Bureau of WIPO
 34, chemin des Colombettes
 1211 Geneva 20, Switzerland
 Facsimile No.: (41-22) 740.14.35
- For more detailed instructions, see the notes on the accompanying sheet.
2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.
3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.
4. **Further action(s):** The applicant is reminded of the following:
- Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in rules 90 bis 1 and 90 bis 3, respectively, before the completion of the technical preparations for international publication.
- Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).
- Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer JACK M. CHOULES 
Facsimile No. (703) 305-3230	Telephone No. (703) 305-9840

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 0106-0001	FOR FURTHER ACTION	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US98/09590	International filing date (day/month/year) 12 MAY 1998	(Earliest) Priority Date (day/month/year) 12 MAY 1997
Applicant KOZAM MARC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 7 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (See Box I).
2. ☐ Unity of invention is lacking (See Box II).
3. ☐ The international application contains disclosure of a nucleotide and/or amino acid sequence listing and the international search was carried out on the basis of the sequence listing
 - ☐ filed with the international application.
 - ☐ furnished by the applicant separately from the international application,
 - ☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.
 - ☐ transcribed by this Authority.
4. With regard to the title,
 - ☐ the text is approved as submitted by the applicant.
 - ☒ the text has been established by this Authority to read as follows:

THE TITLE IS TOO LONG UNDER PCT RULE 4.3 SO IS REPLACED AS FOLLOWS:

THE CENTRALIZED COLLECTION OF GEOGRAPICALLY DISTRIBUTED DATA.
5. With regard to the abstract,
 - ☐ the text is approved as submitted by the applicant.
 - ☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.
6. The figure of the drawings to be published with the abstract is:

Figure No. 1

 - ☐ as suggested by the applicant.
 - ☒ because the applicant failed to suggest a figure.
 - ☐ because this figure better characterizes the invention.
 - ☐ None of the figures.

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

The technical features mentioned in the abstract do not include a reference sign between parentheses (PCT Rule 8.1(d)).

NEW ABSTRACT

The centralized collection of geographically distributed data is accomplished using a system which takes advantage of an interactive programming language, such as Java@ and existing wide area networks, such as the Internet including the world wide web (4), to collect high quality data in an information center (10). The information center being connected to remote sites (1) through the wide area network. One or more levels of validation of the data prior to storage in a database is provided for.

INTERNATIONAL SEARCH REPORT

 International application No.
 PCT/US98/09590

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : GO6F 17/30

US CL : 707/4,10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 707/1,3,4,10; 395/200.33

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X — Y	US 3,576,433 A (LEE III ET AL) 27 APRIL 1971, ABSTRACT, COL 1, LINE 41-COL. 2 LINE 65.	25 — 1-24
X — Y	US 4,868,866 A (WILLIAMS JR.) 19 SEPTEMBER 1989, COL. 3, LINES 44-61	25 — 1-24
X — Y	US 5,179,660 A (DEVANY ET AL) 12 JANUARY 1993, COL. 4, LINES 11-60, AND COL. 5, LINES 18-43.	25 — 1-24
Y	"JETFORM(R) ANNOUNCES FIRST JAVA(TM)-BASED ELECTRONIC FORMS SOLUTION" JETFORM CORPORATION PRESS RELEASE HTTP://WWW.JETFORM.COM/PRESSROOM/1996/PRIR961022.HTML, PP 1-3, ESPECIALLY PAGES 1 AND 2.	1-24

☐

Further documents are listed in the continuation of Box C.

☐

See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
A document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
E earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*A* document member of the same patent family
O document referring to an oral disclosure, use, exhibition or other means	
P document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

20 OCTOBER 1998

Date of mailing of the international search report

12 NOV 1998

 Name and mailing address of the ISA/US
 Commissioner of Patents and Trademarks
 Box PCT
 Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

JACK M. CHOULES

Telephone No. (703) 305-9840

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/09590

B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

APS, Dialog, NPL Science Server, AltaVista on Internet,
valid, invalid, verify, validity check, data, update, input collect, client, server, central, remote www, world wide web,
internet, wide area network.

PATENT COOPERATION TREATY

PCT

NOTICE INFORMING THE APPLICANT OF THE
COMMUNICATION OF THE INTERNATIONAL
APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

From the INTERNATIONAL BUREAU

To:

HERBERT, Toni-Junell
Shanks & Herbert
Suite 306
TransPotomac Plaza
1033 N. Fairfax Street
Alexandria, VA 22314
ÉTATS-UNIS D'AMÉRIQUERECEIVED
DEC 21 1998
SHANKS & HERBERT

Date of mailing (day/month/year) 19 November 1998 (19.11.98)		
Applicant's or agent's file reference 0106-0001		IMPORTANT NOTICE
International application No. PCT/US98/09590	International filing date (day/month/year) 12 May 1998 (12.05.98)	Priority date (day/month/year) 12 May 1997 (12.05.97)
Applicant KOZAM, Marc, L. et al		

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:
AU,CA,EP,IL,JP,KR,US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:
NZ,RU

The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on
19 November 1998 (19.11.98) under No. WO 98/52113

REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a **demand for international preliminary examination** must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the **national phase**, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35	Authorized officer J. Zahra Telephone No. (41-22) 338.83.38
--	---

PATENT COOPERATION TREATY

AUG 0 1998

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION CONCERNING
SUBMISSION OR TRANSMITTAL
OF PRIORITY DOCUMENT

(PCT Administrative Instructions, Section 411)

To:

HERBERT, Toni-Junell
Shanks & Herbert
TransPotomac Plaza
Suite 306
1033 N. Fairfax Street
Alexandria, VA 22314
ETATS-UNIS D'AMERIQUE

Date of mailing (day/month/year) 22 July 1998 (22.07.98)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 0106-0001	
International application No. PCT/US98/09590	
International publication date (day/month/year) Not yet published	
Applicant KOZAM, Marc, L. et al	

- The applicant is hereby notified of the date of receipt (except where the letters "NR" appear in the right-hand column) by the International Bureau of the priority document(s) relating to the earlier application(s) indicated below. Unless otherwise indicated by an asterisk appearing next to a date of receipt, or by the letters "NR", in the right-hand column, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
- This updates and replaces any previously issued notification concerning submission or transmittal of priority documents.
- An asterisk(*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b). In such a case, **the attention of the applicant is directed** to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
- The letters "NR" appearing in the right-hand column denote a priority document which was not received by the International Bureau or which the applicant did not request the receiving Office to prepare and transmit to the International Bureau, as provided by Rule 17.1(a) or (b), respectively. In such a case, **the attention of the applicant is directed** to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

<u>Priority date</u>	<u>Priority application No.</u>	<u>Country or regional Office or PCT receiving Office</u>	<u>Date of receipt of priority document</u>
12 May 1997 (12.05.97)	60/046,214	US	14 July 1998 (14.07.98)

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer

Marc Salzman

Telephone No. (41-22) 338.83.38



002143865

RECEIVED

From the RECEIVING OFFICE

PCTN 10 1998

SHANKS & HERBERT
NOTIFICATION CONCERNING PAYMENT
OF PRESCRIBED FEES(PCT Rules 14, 15 and 16 and
Administrative Instructions, Section 323(d))

To:

TONI-JUNELL HERBERT
SHANKS & HERBERT
TRANSPOTOMAC PLAZA
1033 N. FAIRFAX ST., SUITE 306
ALEXANDRIA VA 22314Date of mailing
(day/month/year)

JUN 10 1998

Applicant's or agent's file reference

0106-0001

PAYMENT DUE

See item 3 for time limits

International application No.

PCT/US98/09590

International filing date/Date of receipt
(day/month/year)

12 MAY 98

Priority date (day/month/year)

12 MAY 97

Applicant

KOZAM, MARC L.

1. The applicant is hereby notified that this receiving Office has received:

☒ the payment of all the prescribed fees, and ☐ an overpayment, which will be refunded in due course.☐ no or insufficient payment of the prescribed fees and the applicant is hereby invited to pay the balance due, as summarized under item 2, within the time limit(s) indicated under item 3.

2. Fees and payment calculation:

Total fees payable

Amount paid

=

Balance

☐ The details of the calculation are given in the Annex.

3. Time limit(s) for payment of prescribed fees:

☐ within ONE MONTH from the date of receipt of the international application
(for the transmittal fee (if any), the search fee, the basic fee and the designation fee)☐ within 12 MONTHS from the priority date
(only for the designation fee and only if this time limit expires later than the above time limit)☐ within 16 MONTHS from the priority date (only for the fee for priority document). The applicant's attention is drawn to the fact the request made by the applicant under Rule 17.1(b) will be considered not to have been made unless the fee is paid within that time limit.

4. Additional observations (if necessary):

☐ The search copy will not be transmitted to the International Searching Authority until the search fee is paid
(therefore the start of the international search will be delayed).☐ Other (specify):

Name and mailing address of the receiving Office

Assistant Commissioner for Patents

Box PCT

Washington, D.C. 20231

Facsimile No.

Attn: RO/US

Authorized officer

Hal Saunders

Telephone No.

703-305-3663

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF RECEIPT OF
RECORD COPY

(PCT Rule 24.2(a))

From the INTERNATIONAL BUREAU

To:

HERBERT, Toni-Junell
Shanks & Herbert
TransPotomac Plaza
Suite 306
1033 N. Fairfax Street
Alexandria, VA 22314
ETATS-UNIS D'AMERIQUE

RECEIVED

JUN 22 1998

HERBERT

Date of mailing (day/month/year) 15 June 1998 (15.06.98)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 0106-0001	International application No. PCT/US98/09590

The applicant is hereby notified that the International Bureau has received the record copy of the international application as detailed below.

Name(s) of the applicant(s) and State(s) for which they are applicants:

KOZAM, Marc, L. et al (all designated States)

International filing date : 12 May 1998 (12.05.98)
Priority date(s) claimed : 12 May 1997 (12.05.97)
Date of receipt of the record copy
by the International Bureau : 11 June 1998 (11.06.98)
List of designated Offices :

EP : AT,BE,CH,CY,DE,DK,ES,FI,FR,GB,GR,IE,IT,LU,MC,NL,PT,SE
National : AU,CA,IL,JP,KR,NZ,RU,US

ATTENTION

The applicant should carefully check the data appearing in this Notification. In case of any discrepancy between these data and the indications in the international application, the applicant should immediately inform the International Bureau.

In addition, the applicant's attention is drawn to the information contained in the Annex, relating to:

- ☒ time limits for entry into the national phase;
☒ confirmation of precautionary designations;
☒ requirements regarding priority documents.

A copy of this Notification is being sent to the receiving Office and to the International Searching Authority.

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer:

H. Zhou

Telephone No. (41-22) 338.83.38



INFORMATION ON TIME LIMITS FOR ENTERING THE NATIONAL PHASE

The applicant is reminded that the "national phase" must be entered before each of the designated Offices indicated in the Notification of Receipt of Record Copy (Form PCT/IB/301) by paying national fees and furnishing translations, as prescribed by the applicable national laws.

The time limit for performing these procedural acts is **20 MONTHS** from the priority date or, for those designated States which the applicant elects in a demand for international preliminary examination or in a later election, **30 MONTHS** from the priority date, provided that the election is made before the expiration of 19 months from the priority date. Some designated (or elected) Offices have fixed time limits which expire even later than 20 or 30 months from the priority date. In other Offices an extension of time or grace period, in some cases upon payment of an additional fee, is available.

In addition to these procedural acts, the applicant may also have to comply with other special requirements applicable in certain Offices. **It is the applicant's responsibility** to ensure that the necessary steps to enter the national phase are taken in a timely fashion. Most designated Offices do not issue reminders to applicants in connection with the entry into the national phase.

For detailed information about the procedural acts to be performed to enter the national phase before each designated Office, the applicable time limits and possible extensions of time or grace periods, and any other requirements, see the relevant Chapters of Volume II of the PCT Applicant's Guide. Information about the requirements for filing a demand for international preliminary examination is set out in Chapter IX of Volume I of the PCT Applicant's Guide.

GR and ES became bound by PCT Chapter II on 7 September 1996 and 6 September 1997, respectively, and may, therefore, be elected in a demand or a later election filed on or after 7 September 1996 and 6 September 1997, respectively, regardless of the filing date of the international application. (See second paragraph above.)

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

CONFIRMATION OF PRECAUTIONARY DESIGNATIONS

This notification lists only specific designations made under Rule 4.9(a) in the request. It is important to check that these designations are correct. Errors in designations can be corrected where precautionary designations have been made under Rule 4.9(b). The applicant is hereby reminded that any precautionary designations may be confirmed according to Rule 4.9(c) before the expiration of 15 months from the priority date. If it is not confirmed, it will automatically be regarded as withdrawn by the applicant. There will be no reminder and no invitation. Confirmation of a designation consists of the filing of a notice specifying the designated State concerned (with an indication of the kind of protection or treatment desired) and the payment of the designation and confirmation fees. Confirmation must reach the receiving Office within the 15-month time limit.

REQUIREMENTS REGARDING PRIORITY DOCUMENTS

For applicants who have not yet complied with the requirements regarding priority documents the following is recalled.

Where the priority of an earlier national (i.e., national or regional) application is claimed, the applicant must submit a copy of the said national application, certified by the authority with which it was filed ("the priority document") to the receiving Office (which will transmit it to the International Bureau) or directly to the International Bureau, before the expiration of 16 months from the priority date (Rule 17.1).

Where the priority document is issued by the receiving Office, the applicant may, instead of submitting the priority document, request the receiving Office to prepare and transmit the priority document to the International Bureau. Such request must be made before the expiration of the 16-month time limit.

It is recalled that, where several priorities are claimed, the priority date to be considered for the purposes of computing the 16-month time limit is the filing date of the earliest application whose priority is claimed.

If the priority document concerned is not submitted to the International Bureau before the expiration of the 16-month time limit, or if the request to the receiving Office to transmit the priority document has not been made (and the corresponding fee, if any, paid) before the expiration of this time limit, any designated State may disregard the priority claim.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/09590

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : G06F 17/30
US CL : 707/4,10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 707/1,3,4,10; 395/200.33

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X — Y	US 3,576,433 A (LEE III ET AL) 27 APRIL 1971, ABSTRACT, COL 1, LINE 41-COL. 2 LINE 65.	25 — 1-24
X — Y	US 4,868,866 A (WILLIAMS JR.) 19 SEPTEMBER 1989, COL. 3, LINES 44-61	25 — 1-24
X — Y	US 5,179,660 A (DEVANY ET AL) 12 JANUARY 1993, COL. 4, LINES 11-60, AND COL. 5, LINES 18-43.	25 — 1-24
Y	"JETFORM(R) ANNOUNCES FIRST JAVA(TM)-BASED ELECTRONIC FORMS SOLUTION" JETFORM CORPORATION PRESS RELEASE HTTP://WWW.JETFORM.COM/PRESSROOM/1996/PRI961022.HTML, PP 1-3, ESPECIALLY PAGES 1 AND 2.	1-24

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
A document defining the general state of the art which is not considered to be of particular relevance	*X*	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
B earlier document published on or after the international filing date	*Y*	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*A*	document member of the same patent family
O document referring to an oral disclosure, use, exhibition or other means		
P document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search
20 OCTOBER 1998

Date of mailing of the international search report

12 NOV 1998

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

JACK M. CHOULES

Telephone No. (703) 305-9840

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US98/09590

B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

APS, Dialog, NPL Science Server, AltaVista on Internet,
valid, invalid, verify, validity check, data, update, input collect, client, server, central, remote www, world wide web,
internet, wide area network.

PCTWORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : G06F	A2	(11) International Publication Number: WO 98/52113 (43) International Publication Date: 19 November 1998 (19.11.98)
(21) International Application Number: PCT/US98/09590 (22) International Filing Date: 12 May 1998 (12.05.98) (30) Priority Data: 60/046,214 12 May 1997 (12.05.97) US (71)(72) Applicants and Inventors: KOZAM, Marc, L. [US/US]; 13245 Glenhill Road, Silver Spring, MD 20904 (US). KORMAN, Louis, Y. [US/US]; 11424 Cushman Road, Rockville, MD 20852 (US). (74) Agents: HERBERT, Toni-Junell et al.; Shanks & Herbert, Suite 306, TransPotomac Plaza, 1033 N. Fairfax Street, Alexandria, VA 22314 (US).		(81) Designated States: AU, CA, IL, JP, KR, NZ, RU, US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>Without international search report and to be republished upon receipt of that report.</i>
(54) Title: METHOD AND APPARATUS FOR THE CENTRALIZED COLLECTION OF GEOGRAPHICALLY DISTRIBUTED DATA		
(57) Abstract the centralized collection of geographically distributed data is accomplished using a system which takes advantage of an interactive programming language, such as Java® and existing wide area networks, such as the Internet including the world wide web, to collect high quality data. One or more levels of validation of the data prior to storage in a database is provided for.		

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece			TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MN	Mongolia	UA	Ukraine
BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
BY	Belarus	IS	Iceland	MW	Malawi	US	United States of America
CA	Canada	IT	Italy	MX	Mexico	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
CG	Congo	KE	Kenya	NL	Netherlands	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NO	Norway	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	NZ	New Zealand		
CM	Cameroon			PL	Poland		
CN	China	KR	Republic of Korea	PT	Portugal		
CU	Cuba	KZ	Kazakhstan	RO	Romania		
CZ	Czech Republic	LC	Saint Lucia	RU	Russian Federation		
DE	Germany	LI	Liechtenstein	SD	Sudan		
DK	Denmark	LK	Sri Lanka	SE	Sweden		
EE	Estonia	LR	Liberia	SG	Singapore		

METHOD AND APPARATUS FOR THE CENTRALIZED COLLECTION OF GEOGRAPHICALLY DISTRIBUTED DATA

TECHNICAL FIELD AND INDUSTRIAL APPLICABILITY OF INVENTION

5 The present invention relates to a method and apparatus for the centralized collection of geographically distributed data. In particular, the invention provides for a method of gathering data that provides interactivity and uses an existing wide area network in the collection of data, while providing high quality data collection with immediate validation of data. Accordingly, the invention is particularly applicable to
10 any enterprise wherein it is useful to collect and maintain data for subsequent study or analysis. It is extremely useful for institutions or businesses wishing to amass data for prospective studies, such as clinical trials for pharmaceuticals.

BACKGROUND OF THE INVENTION

15 Previously information gathering and data transmission has taken several forms. For example, an individual or member of a group may be given a questionnaire for completion and asked to deliver the completed questionnaire to a central location for tabulation or other processing.

20 Information (i.e., data), once obtained, may then be transmitted to a central or primary location in several ways. The data, if on paper, may be mailed or perhaps facsimile transmitted to the central location where it is received and further processed. Using a computer system, the information may be encrypted on a computer diskette and mailed to a central location or transmitted by modem. Data on
25 the diskette is then input to a database, for example, where it is electronically stored for further processing. This type of data gathering has a number of drawbacks. One major problem is that the database must be able to accept information deriving from various diskette styles and from diverse computer types or platforms, or the information can only be gathered in this manner by machines which are compatible in
30 their document processing formats. The only other option is to transmit the computer readable data in a plain ASCII format.

As a result, for any study using a large number of data gathers, such as a clinical trial, the data is usually transmitted in paper form to be read and input to a computer database by another individual.

5 Over the years, the medical profession has widely used information collection and analysis to determine, for example, if procedures being performed are achieving the desired or expected results. Factors relating to both demographic and clinical data are needed to accurately report on completed procedures. Data ranging from the patient information such as age, weight, gender and so on, must be known as
10 well as other information such as the symptoms experienced by the patient, methods used to perform the procedure, tools used, biopsies performed, measurements taken as well as other more detailed clinical information.

In some instances, obtaining information regarding medical procedures can be
15 relatively straight forward. For example, due to the high cost of equipment and staff involved, heart transplants are performed at relatively few medical facilities. Thus, these facilities can be more easily networked to enable access to a central database where results and demographics can be collected and processed. For example, it is physically possible and not too onerous to visit each site where heart transplants are
20 performed and install computer software, and provide training to the hospital staff regarding how to gather and enter the clinical and demographic information into the hospital-based terminals. The information may then be transmitted to a central site via a private wide area network for processing or for inclusion into a database to be available for review and study.

25

When information must be collected from a great many locations, the above systems are not practical. The cost of installing a private wide area network is typically prohibitive. For instance, many medical procedures are implemented throughout the world, in virtually any hospital or medical operating facility. For
30 example, eye lens replacement (cataract) surgery and gastrointestinal endoscopic procedures are practiced or performed on an "out-patient," same day surgery basis throughout not only the United States, but the world, in facilities such as local or community hospitals or even stand alone out-patient surgical units. Thus, it is

impractical and expensive to visit each and every site, install compatible software, and provide training for its use at such a large number of sites. In addition, each upgrade in software would require the same extensive visiting and dissemination. Moreover, the chances of erroneous information being entered into a system are
5 greatly increased as the number of entry sites is expanded.

In addition to the medical community and research centers collecting data for studies, pharmaceutical companies are required to collect data in vast multi-center sites in order to obtain regulatory approval for their drugs. Clinical studies for drug
10 approval require dose ranging and efficacy studies which are usually carried out in sites around the globe such as in the United States, Europe, Canada and Australia. Typically, the pharmaceutical company together with the United States Food and Drug Administration develops the strategy to study the effect of the drug or vaccine. This results in a protocol which is disseminated to all physicians and sites involved in
15 the study. The information is then gathered and recorded by hand in the filling out of a form. These forms, with all of their possible human data entry mistakes and bad handwriting, are then sent to the pharmaceutical company to be rerecorded and entered into a computer as data for statistical analysis.

20 The gathering of the information at the sites is tedious and is extremely expensive for the pharmaceutical companies. In addition, when there is inaccurate data or unusable data, i.e., invalid data, entire studies can be in jeopardy. Due to the difficulties in obtaining patients for studies, it is imperative to be able to use all the data so as to have a statistically significant result; when data is invalid through errors
25 in recording, studies can be lost.

Accordingly, a need exists for an effective means for gathering geographically distributed data that is valid and will permit the use of the data in either prospective or retrospective studies. In addition, the method or system should make use of existing
30 wide area networks and be compatible with readily available hardware and software so as to provide a cost effective means of gathering the data. Such a means is provided by the method and system of the present invention.

SUMMARY OF THE INVENTION

It is therefore a principle object of the invention to provide a method and apparatus for the centralized collection of geographically distributed data.

It is a further object of the invention to solve the above identified problems in
5 the field.

The present invention solves the problems noted above by providing a data gathering, validation/verification and transmission system that may be easily, and at minimal cost, made available to substantially all practitioners in a field regardless of geographic location. Moreover, the system is designed to be utilized by even non-
10 computer-literate individuals in the general population.

The present invention provides an interactive method for the centralized collection of geographically distributed data using an existing wide area network. The method accommodates for data being input from diverse computer types and
15 platforms via the use of a universal interactive programming language, such as JAVA ®. In addition, the method assures that the collected data is of the highest quality due to immediate validation during the gathering process, and prior to acceptance and storage in the database.

Accordingly, the present invention provides a method for the centralized
20 collection of geographically distributed data comprising: receiving data from the at least one user with the remote site computer; checking the data for validity with the remote site computer; providing the user an opportunity to correct any invalid data found during the checking; transmitting the data to a centralized computer over a
25 transmission medium; receiving and validating the data from the remote site computer at the centralized computer, including comparing the data to data already stored at the centralized computer to determine if it is valid or invalid; if the data from the remote site computer is determined to be invalid, then performing the following until all data is determined to be valid: signaling with the centralized computer to the
30 remote site computer to provide the user an opportunity to correct invalid data; transmitting corrected data from the remote site computer to the centralized computer; and receiving and validating the corrected data from the remote site computer at the centralized computer, including comparing the corrected data to data

already stored at the centralized computer to determine if it is valid or invalid; when all data has been determined to be valid, then entering and storing the valid data in a central database at the centralized computer.

5 BRIEF DESCRIPTION OF THE DRAWING

Figure 1 is a functional block diagram showing an exemplary embodiment of the invention.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

10 The invention will now be described in more detail by way of example with reference to the embodiment shown in the accompanying figure. It should be kept in mind that the following described embodiment is only presented by way of example and should not be construed as limiting the inventive concept to any particular physical configuration.

15

While the invention will be discussed with specific reference to the medical profession, this is for convenience only. The invention is applicable to any profession and business wanting to collect high quality data. For example, the invention may be used to collect information following such diverse practices as appliance repairs,
20 automotive repairs and lawn mower sales. After the repair of an appliance, needed information may be input at a terminal describing demographics relative to the appliance, the location, and or the owner can be entered and transferred to a central location. Also, data concerning the repair may also be entered and transmitted. Similarly, the type of lawn mower, the size of the lawn owned by the purchaser and
25 optional equipment purchased (bagging or mulching attachment for instance) can be input and correlated with other, earlier entered data. This would give the manufacturer and distributor constantly updated information on sales and customer needs to direct future design, manufacturing and inventory planning.

30 This invention, however, has a specific use in the medical profession for several reasons. It is important to track an individual patient to be able to ascertain, for example, if a recently completed procedure had been performed previously on that patient. If so, it is desirable to be able to check the personal information to

determine if there have been significant changes in the patient. Has it been 10 years or 10 days since the procedure was last performed? Has the patient's weight changed significantly or not at all? This invention verifies data both as it is input by the user as well as when it is received at a central or primary collection point. Also,
5 information regarding surgery performed on similar patient types can be easily reviewed and analyzed for future use. A multitude of other information may also be gathered.

The general plan for implementation of the method of the present invention is
10 as follows. Initially, it is necessary to define the information desired to be collected. For example, in a clinical trial, the protocol or study design will define the information to be collected. Then, the information is broken down into each variable with the parameters defined for validation of that variable. These parameters and validation
15 criteria are then programmed. In particular, the invention uses a programming language that is: optimized for use with browsers; suited for interactive applications; platform independent; relatively concise; and downloadable through a browser. A particularly preferred such language is JAVA ®.

An interactive programming language offers several advantages. Packets
20 (applets in Java ®) containing the various questionnaires to be completed are loaded at the primary site server or web site and are transmitted to the various remote site locations on a "when needed" basis. Thus, it is not necessary to physically visit each individual remote site to install software. Moreover, it is not necessary to visit each site for usage training because the system is very user friendly. The user's computer
25 is capable of connecting to the internet and the user's browser is capable of processing interactive programming language, thus instructions and advice appear on their monitor as necessary.

Also, because interactive programming uses small packets or applets,
30 changes or updates to the programming are easily accomplished. Moreover, only those packets that are needed to complete a specific questionnaire or form are downloaded by the user. Because the programming is interactive, questions are

displayed and answered by the user on a user screen, with the answer being transmitted or delivered to the designated location.

5 User interfaces or screens are created for collecting and validating each element or field variable of the data. For example, user interface screens are designed using programming languages such as JAVA ® and HTML. Once again, the languages used to create the user interface or screens should be: optimized for use with browsers; relatively concise; suited for interactive applications; and downloadable through a browser.

10

 All of the elements or fields are then assembled into a collection or form. Another level of validation is then carried out. The validated data is then transmitted to the central site or database, defined for central storage of the collected, verified data. Databases range from a file to the traditional server. However, the invention
15 contemplates any method of centralized storage that allows for entry and storage of data. In particular, the invention uses the PERL programming language for storage of the data. An additional level of validation is then carried out wherein the previously validated data is checked against the database to determine whether it is to be accepted or returned to the user.

20

 The information or data, as discussed above, is input to and stored in a primary database from which it may be retrieved for processing using a database management system. To be useful, however, the database must be provided with accurate information (data) from all sources where that information can originate; i.e.,
25 from virtually all sites where the procedures are being performed. The inventive system includes a means to verify the information at input to reduce, and filter out incorrect information from being transmitted for inclusion into the database. Moreover, the information is further validated against previously stored data. This additional level of validation allows for preventing duplicate data from being entered.
30 It also provides an additional level of validation regarding the accuracy of the data.

 The invention further includes security, e.g., a firewall, to exclude unwarranted intrusion and to protect personal information from being improperly accessed.

Referring specifically to the Figure, an exemplary embodiment of the overall system according to the invention is shown diagrammatically. Only one remote site computer 2, e.g., a personal computer, is shown; however, it is to be understood that
5 any number of personal computers may be used, each one connected, via a wide area network such as the internet, to an information center 10 which includes a research database. The remote site computer(s) 2 would typically be geographically distributed at various different locations which could be anywhere in the world.

10 Very basically, an exemplary embodiment of the apparatus according to the invention comprises a system having at least one remote site personal computer 2 which can use a browser 3 to connect to a wide area network, e.g., the internet including the world wide web 4. The remote site computer 2 has the browser 3 installed therein, or in a remote site server (not shown). The browser 3 operates as is
15 well known in the art to enable communication and connection of the remote site computer 2 to a wide area network, such as the internet and world wide web 4. The wide area network, such as the internet 4, is also connected, through a security system 5, e.g., a security firewall, and interface filter scripts 8, to a centralized computer system, i.e., a primary site server 6 at the information center 10. The
20 server 6 includes a database management system (DBMS) that collects and stores all information that is accepted in a database. The server database management system (DBMS) allows for access to the information within the database and processing thereof. The primary site server 6 may be embodied as a web site in which a form to be completed with information to be stored in the database is
25 accessed from the web site's home page, for example.

An advantageous aspect of the invention is the provision of one or more validation/verification operations on the data. The embodiment illustrated provides for two separate validation/verification operations represented by interface filter plug-in
30 block 7 and interface filter scripts block 8. A verification/validation is provided by interface plug-in block 7 at the remote site computer 2, and may be implemented as an add-on part of browser 3. The interface filter plug-in 7 at the remote site verifies information as it is entered in remote site computer 2. A second verification/validation

is provided by interface filter scripts block 8 to verify information prior to it being committed to and stored in the database at the primary site server 6 at the information center 10. The separate operations of blocks 7 and 8 are explained below.

5

The above disclosed system provides for a very efficient and effective system to collect information, and to verify collected information for accuracy, both at the input side and collection side of the system.

10

As illustrated, at remote site computer 2 is an interface filter plug-in 7. The interface filter plug-in 7 provides for a first validation check of the data being entered at remote site computer 2. The interface filter plug-in 7 preferably checks information as it is entered; i.e., as questions are answered or fields of a form are filled in, as they appear on the monitor (not shown) of the remote site computer 2. For example, if the question/field is regarding a person's age, the interface plug-in filter 7 would instantly ask a user for confirmation of the input data if, for example, the input for that answer/field, because of a typo, was "150" years old. Clearly this data is easily recognizable by the interface plug-in filter 7 as an error which should be immediately corrected by the user.

20

Also, the interface plug-in filter 7 may be configured to check one answer/field, or a series of answers/fields, against other answers/fields. For example, if a person's weight is entered as 10 pounds but the person is also listed as being 35 years old, the interface plug-in filter 7 could query the user entering the information at the remote site computer 2 to correct the input data in one or both answers/fields.

25

30

An interface filter scripts block 8 is provided as a plug-in at the information center 10, and block 8 operates to filter and validate, and in particular, to check the data received from the remote site computer 2 against data already in storage in the database at the information center 10. For example, before entering new information into the database, a check is made to determine if the same information has previously been delivered to and stored in the database. Further, as another example, if the system is being used to track medical procedures, it would be

important to determine if the patient were treated previously using the same procedure, or a different but related procedure at another remote site. Interface filter block 8 would operate to instruct the primary site server 6 to check if the patient in question, using a unique identifier, e. g, driver's license number, has previously
5 reported information stored within the database.

It will be apparent to one skilled in the art that the manner of making and using the claimed invention has been adequately disclosed in the above-written description of the preferred embodiments taken together with the drawing.

10

It will be understood that the above described preferred embodiment of the present invention is susceptible to various modifications, changes, and adaptations, and the same are intended to be comprehended within the meaning and range of equivalents of the appended claims.

WHAT IS CLAIMED IS:

1. A computer-based method for centralized collection of geographically distributed information from at least one user at a remote site computer, comprising:
 - receiving data from the at least one user with the remote site computer;
 - checking the data for validity with the remote site computer;
 - providing the user an opportunity to correct any invalid data found during the checking;
 - transmitting the data to a centralized computer over a transmission medium;
 - receiving and validating the data from the remote site computer at the centralized computer, including comparing the data to data already stored at the centralized computer to determine if it is valid or invalid;
 - if the data from the remote site computer is determined to be invalid, then performing the following until all data is determined to be valid:
 - signaling with the centralized computer to the remote site computer to provide the user an opportunity to correct invalid data;
 - transmitting corrected data from the remote site computer to the centralized computer; and
 - receiving and validating the corrected data from the remote site computer at the centralized computer, including comparing the corrected data to data already stored at the centralized computer to determine if the data is valid or invalid;
 - when all data has been determined to be valid, then entering and storing the valid data in a central database at the centralized computer.
2. The method according to claim 1, wherein the receiving data from the at least one user with the remote site computer comprises displaying a form having fields to the user into which the data is entered field by field;
 - wherein the checking the data for validity with the remote site computer comprises checking the data as it is entered in a field by the user; and
 - wherein the providing the user an opportunity to correct any invalid data found during the checking comprises signaling the user that data entered in a field may be invalid.

3. The method according to claim 2, wherein the checking the data for validity with the remote site computer comprises checking the data after data has been entered by the user into all fields of the form.

4. The method according to claim 1, wherein the transmitting the data to a centralized computer over a transmission medium comprises:

 sending the data from the remote site computer to the centralized computer via the internet.

5. The method according to claim 1, wherein the method further comprises:

 establishing a connection between the remote site computer and the centralized computer via the internet using a browser having interface filter plug-ins.

6. The method according to claim 5, wherein the interface filter plug-ins provide the checking the data for validity with the remote site computer.

7. The method according to claim 5, wherein the receiving and validating the data from the remote site computer to determine if the data is valid or invalid is performed using interface filter scripts.

8. The method according to claim 5, wherein the remote site computer and the centralized computer are programmed to perform the method using a programming language optimized for use with the browser, suitable for interactive applications, platform independent, relatively concise and downloadable through a browser.

9. The method according to claim 8, wherein the programming language comprises JAVA ®.

10. The method according to claim 1, wherein the geographically distributed data is data obtained during a clinical trial.

11. A computer-based system to gather, transmit and store geographically distributed information comprising:

input means for entry of information at a remote site;

an information center having receiving means for receiving and storing the information;

transmission means for transmitting the entered information to the receiving means from the remote site input means;

first verification means at the remote site for verifying the information for accuracy as the information is being entered with the input means; and

second verification means at the information center for verifying the information received from the remote site input means by comparing the information with information previously stored at the information center.

12. The apparatus of claim 11, wherein said input means at said remote site comprises a computer having data entry means for entering data, a central processing means for processing data, and a display means for displaying data.

13. The apparatus of claim 12, wherein the transmission means comprises a browser running in the computer.

14. The apparatus of claim 13, wherein the receiving means for receiving and storing the information comprises a server including a database and a database management system.

15. The apparatus of claim 14, wherein the transmission means further comprises a wide area network connecting the server and the computer.

16. The apparatus of claim 15, wherein the wide area network comprises the internet including the world wide web.

17. The apparatus of claim 11, wherein the first verification means comprises an interface plug-in including a filter.

18. The apparatus of claim 11, wherein second verification means at the information center comprises an interface filter including a script to verify new information against stored information.

19. The apparatus of claim 11, further including security means for insuring the integrity of the information that is transmitted and that is stored.

20. The apparatus of claim 11, wherein the computer-based system is controlled by an interactive programming language software installed at the information center and accessible by the remote site.

21. The apparatus of claim 20, wherein said interactive programming language comprises the Java® programming language.

22. The apparatus of claim 18, wherein said script comprises Java Script®.

23. A computer system for the centralized collection of geographically distributed information, comprising:

- a remote site computer having a browser with a first data verification module for verifying data entered at the remote site computer;

- a transmission medium coupled to the remote site computer; and

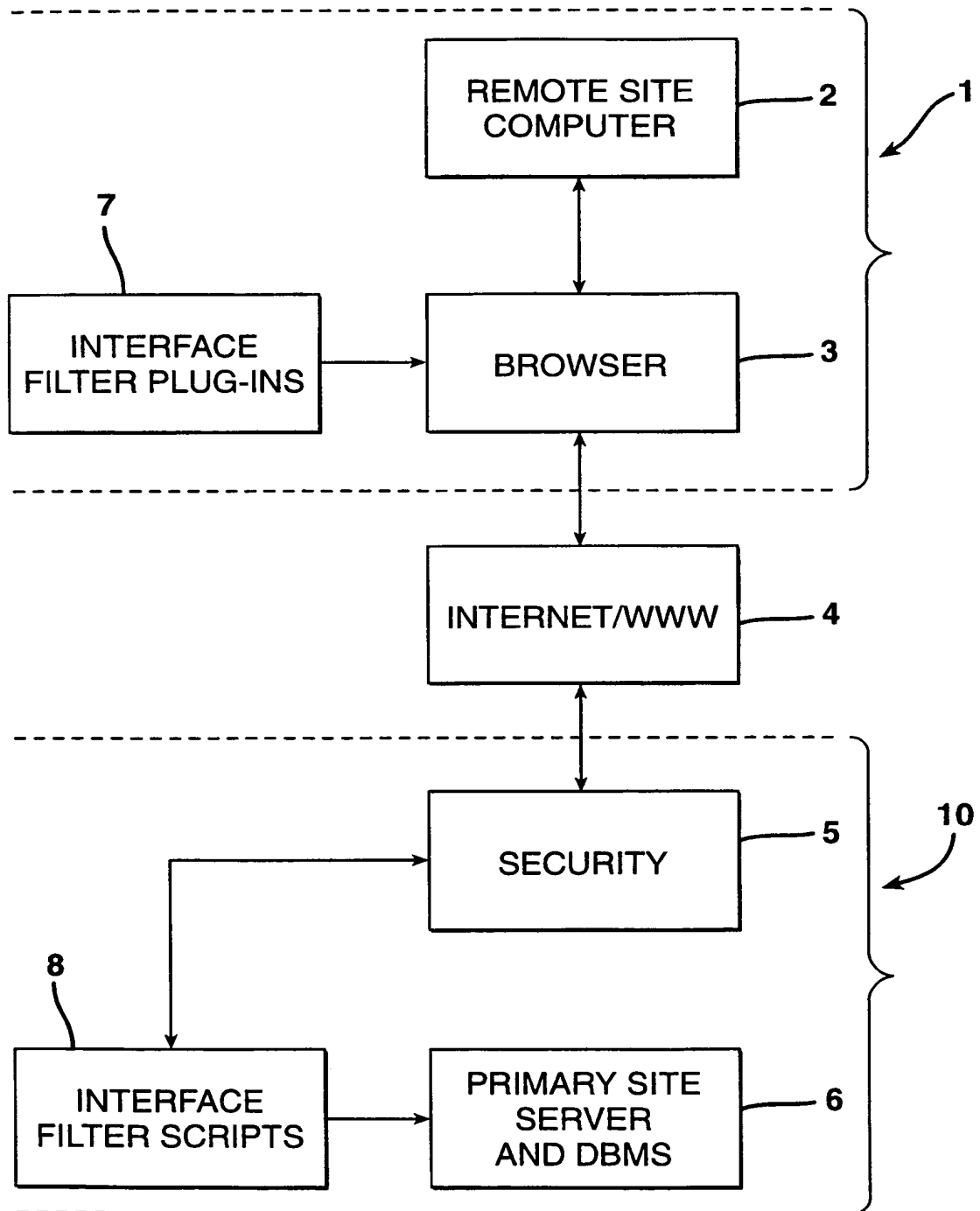
- a central computer coupled to the transmission medium, and having a database and a second data verification module for verifying data received from the remote site computer.

24. The computer system according to claim 23, further comprising a plurality of remote site computers, each having a browser with a first data verification module for verifying data entered at the respective remote site computer, and each remote site computer being coupled to the transmission medium.

25. An article of manufacture comprising a computer program product, the computer program product comprising means for causing a computer to provide a computer-based method for centralized collection of geographically distributed information.

1/1

FIG. 1



METHOD AND APPARATUS FOR THE CENTRALIZED COLLECTION OF GEOGRAPHICALLY DISTRIBUTED DATA

TECHNICAL FIELD AND INDUSTRIAL APPLICABILITY OF INVENTION

5 The present invention relates to a method and apparatus for the centralized collection of geographically distributed data. In particular, the invention provides for a method of gathering data that provides interactivity and uses an existing wide area network in the collection of data, while providing high quality data collection with immediate validation of data. Accordingly, the invention is particularly applicable to
10 any enterprise wherein it is useful to collect and maintain data for subsequent study or analysis. It is extremely useful for institutions or businesses wishing to amass data for prospective studies, such as clinical trials for pharmaceuticals.

BACKGROUND OF THE INVENTION

15 Previously information gathering and data transmission has taken several forms. For example, an individual or member of a group may be given a questionnaire for completion and asked to deliver the completed questionnaire to a central location for tabulation or other processing.

20 Information (i.e., data), once obtained, may then be transmitted to a central or primary location in several ways. The data, if on paper, may be mailed or perhaps facsimile transmitted to the central location where it is received and further processed. Using a computer system, the information may be encrypted on a computer diskette and mailed to a central location or transmitted by modem. Data on
25 the diskette is then input to a database, for example, where it is electronically stored for further processing. This type of data gathering has a number of drawbacks. One major problem is that the database must be able to accept information deriving from various diskette styles and from diverse computer types or platforms, or the information can only be gathered in this manner by machines which are compatible in
30 their document processing formats. The only other option is to transmit the computer readable data in a plain ASCII format.

As a result, for any study using a large number of data gatherers, such as a clinical trial, the data is usually transmitted in paper form to be read and input to a computer database by another individual.

5 Over the years, the medical profession has widely used information collection and analysis to determine, for example, if procedures being performed are achieving the desired or expected results. Factors relating to both demographic and clinical data are needed to accurately report on completed procedures. Data ranging from the patient information such as age, weight, gender and so on, must be known as
10 well as other information such as the symptoms experienced by the patient, methods used to perform the procedure, tools used, biopsies performed, measurements taken as well as other more detailed clinical information.

In some instances, obtaining information regarding medical procedures can be
15 relatively straight forward. For example, due to the high cost of equipment and staff involved, heart transplants are performed at relatively few medical facilities. Thus, these facilities can be more easily networked to enable access to a central database where results and demographics can be collected and processed. For example, it is physically possible and not too onerous to visit each site where heart transplants are
20 performed and install computer software, and provide training to the hospital staff regarding how to gather and enter the clinical and demographic information into the hospital-based terminals. The information may then be transmitted to a central site via a private wide area network for processing or for inclusion into a database to be available for review and study.

25 When information must be collected from a great many locations, the above systems are not practical. The cost of installing a private wide area network is typically prohibitive. For instance, many medical procedures are implemented throughout the world, in virtually any hospital or medical operating facility. For
30 example, eye lens replacement (cataract) surgery and gastrointestinal endoscopic procedures are practiced or performed on an "out-patient," same day surgery basis throughout not only the United States, but the world, in facilities such as local or community hospitals or even stand alone out-patient surgical units. Thus, it is

impractical and expensive* to visit each and every site, install compatible software, and provide training for its use at such a large number of sites. In addition, each upgrade in software would require the same extensive visiting and dissemination. Moreover, the chances of erroneous information being entered into a system are greatly increased as the number of entry sites is expanded.

In addition to the medical community and research centers collecting data for studies, pharmaceutical companies are required to collect data in vast multi-center sites in order to obtain regulatory approval for their drugs. Clinical studies for drug approval require dose ranging and efficacy studies which are usually carried out in sites around the globe such as in the United States, Europe, Canada and Australia. Typically, the pharmaceutical company together with the United States Food and Drug Administration develops the strategy to study the effect of the drug or vaccine. This results in a protocol which is disseminated to all physicians and sites involved in the study. The information is then gathered and recorded by hand in the filling out of a form. These forms, with all of their possible human data entry mistakes and bad handwriting, are then sent to the pharmaceutical company to be rerecorded and entered into a computer as data for statistical analysis.

The gathering of the information at the sites is tedious and is extremely expensive for the pharmaceutical companies. In addition, when there is inaccurate data or unusable data, i.e., invalid data, entire studies can be in jeopardy. Due to the difficulties in obtaining patients for studies, it is imperative to be able to use all the data so as to have a statistically significant result; when data is invalid through errors in recording, studies can be lost.

Accordingly, a need exists for an effective means for gathering geographically distributed data that is valid and will permit the use of the data in either prospective or retrospective studies. In addition, the method or system should make use of existing wide area networks and be compatible with readily available hardware and software so as to provide a cost effective means of gathering the data. Such a means is provided by the method and system of the present invention.

SUMMARY OF THE INVENTION

It is therefore a principle object of the invention to provide a method and apparatus for the centralized collection of geographically distributed data.

It is a further object of the invention to solve the above identified problems in
5 the field.

The present invention solves the problems noted above by providing a data gathering, validation/verification and transmission system that may be easily, and at minimal cost, made available to substantially all practitioners in a field regardless of geographic location. Moreover, the system is designed to be utilized by even non-
10 computer-literate individuals in the general population.

The present invention provides an interactive method for the centralized collection of geographically distributed data using an existing wide area network. The method accommodates for data being input from diverse computer types and
15 platforms via the use of a universal interactive programming language, such as JAVA ®. In addition, the method assures that the collected data is of the highest quality due to immediate validation during the gathering process, and prior to acceptance and storage in the database.

Accordingly, the present invention provides a method for the centralized
20 collection of geographically distributed data comprising: receiving data from the at least one user with the remote site computer; checking the data for validity with the remote site computer; providing the user an opportunity to correct any invalid data found during the checking; transmitting the data to a centralized computer over a
25 transmission medium; receiving and validating the data from the remote site computer at the centralized computer, including comparing the data to data already stored at the centralized computer to determine if it is valid or invalid; if the data from the remote site computer is determined to be invalid, then performing the following until all data is determined to be valid: signaling with the centralized computer to the
30 remote site computer to provide the user an opportunity to correct invalid data; transmitting corrected data from the remote site computer to the centralized computer; and receiving and validating the corrected data from the remote site computer at the centralized computer, including comparing the corrected data to data

already stored at the centralized computer to determine if it is valid or invalid; when all data has been determined to be valid, then entering and storing the valid data in a central database at the centralized computer.

5 BRIEF DESCRIPTION OF THE DRAWING

Figure 1 is a functional block diagram showing an exemplary embodiment of the invention.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

10 The invention will now be described in more detail by way of example with reference to the embodiment shown in the accompanying figure. It should be kept in mind that the following described embodiment is only presented by way of example and should not be construed as limiting the inventive concept to any particular physical configuration.

15

While the invention will be discussed with specific reference to the medical profession, this is for convenience only. The invention is applicable to any profession and business wanting to collect high quality data. For example, the invention may be used to collect information following such diverse practices as appliance repairs,
20 automotive repairs and lawn mower sales. After the repair of an appliance, needed information may be input at a terminal describing demographics relative to the appliance, the location, and or the owner can be entered and transferred to a central location. Also, data concerning the repair may also be entered and transmitted. Similarly, the type of lawn mower, the size of the lawn owned by the purchaser and
25 optional equipment purchased (bagging or mulching attachment for instance) can be input and correlated with other, earlier entered data. This would give the manufacturer and distributor constantly updated information on sales and customer needs to direct future design, manufacturing and inventory planning.

30 This invention, however, has a specific use in the medical profession for several reasons. It is important to track an individual patient to be able to ascertain, for example, if a recently completed procedure had been performed previously on that patient. If so, it is desirable to be able to check the personal information to

determine if there have been significant changes in the patient. Has it been 10 years or 10 days since the procedure was last performed? Has the patient's weight changed significantly or not at all? This invention verifies data both as it is input by the user as well as when it is received at a central or primary collection point. Also, information regarding surgery performed on similar patient types can be easily reviewed and analyzed for future use. A multitude of other information may also be gathered.

The general plan for implementation of the method of the present invention is as follows. Initially, it is necessary to define the information desired to be collected. For example, in a clinical trial, the protocol or study design will define the information to be collected. Then, the information is broken down into each variable with the parameters defined for validation of that variable. These parameters and validation criteria are then programmed. In particular, the invention uses a programming language that is: optimized for use with browsers; suited for interactive applications; platform independent; relatively concise; and downloadable through a browser. A particularly preferred such language is JAVA ®.

An interactive programming language offers several advantages. Packets (applets in Java ®) containing the various questionnaires to be completed are loaded at the primary site server or web site and are transmitted to the various remote site locations on a "when needed" basis. Thus, it is not necessary to physically visit each individual remote site to install software. Moreover, it is not necessary to visit each site for usage training because the system is very user friendly. The user's computer is capable of connecting to the internet and the user's browser is capable of processing interactive programming language, thus instructions and advice appear on their monitor as necessary.

Also, because interactive programming uses small packets or applets, changes or updates to the programming are easily accomplished. Moreover, only those packets that are needed to complete a specific questionnaire or form are downloaded by the user. Because the programming is interactive, questions are

displayed and answered by the user on a user screen, with the answer being transmitted or delivered to the designated location.

5 User interfaces or screens are created for collecting and validating each element or field variable of the data. For example, user interface screens are designed using programming languages such as JAVA ® and HTML. Once again, the languages used to create the user interface or screens should be: optimized for use with browsers; relatively concise; suited for interactive applications; and downloadable through a browser.

10

 All of the elements or fields are then assembled into a collection or form. Another level of validation is then carried out. The validated data is then transmitted to the central site or database, defined for central storage of the collected, verified data. Databases range from a file to the traditional server. However, the invention
15 contemplates any method of centralized storage that allows for entry and storage of data. In particular, the invention uses the PERL programming language for storage of the data. An additional level of validation is then carried out wherein the previously validated data is checked against the database to determine whether it is to be accepted or returned to the user.

20

 The information or data, as discussed above, is input to and stored in a primary database from which it may be retrieved for processing using a database management system. To be useful, however, the database must be provided with accurate information (data) from all sources where that information can originate; i.e.,
25 from virtually all sites where the procedures are being performed. The inventive system includes a means to verify the information at input to reduce, and filter out incorrect information from being transmitted for inclusion into the database. Moreover, the information is further validated against previously stored data. This additional level of validation allows for preventing duplicate data from being entered.
30 It also provides an additional level of validation regarding the accuracy of the data.

 The invention further includes security, e.g., a firewall, to exclude unwarranted intrusion and to protect personal information from being improperly accessed.

Referring specifically to the Figure, an exemplary embodiment of the overall system according to the invention is shown diagrammatically. Only one remote site computer 2, e.g., a personal computer, is shown; however, it is to be understood that
5 any number of personal computers may be used, each one connected, via a wide area network such as the internet, to an information center 10 which includes a research database. The remote site computer(s) 2 would typically be geographically distributed at various different locations which could be anywhere in the world.

10 Very basically, an exemplary embodiment of the apparatus according to the invention comprises a system having at least one remote site personal computer 2 which can use a browser 3 to connect to a wide area network, e.g., the internet including the world wide web 4. The remote site computer 2 has the browser 3 installed therein, or in a remote site server (not shown). The browser 3 operates as is
15 well known in the art to enable communication and connection of the remote site computer 2 to a wide area network, such as the internet and world wide web 4. The wide area network, such as the internet 4, is also connected, through a security system 5, e.g., a security firewall, and interface filter scripts 8, to a centralized computer system, i.e., a primary site server 6 at the information center 10. The
20 server 6 includes a database management system (DBMS) that collects and stores all information that is accepted in a database. The server database management system (DBMS) allows for access to the information within the database and processing thereof. The primary site server 6 may be embodied as a web site in which a form to be completed with information to be stored in the database is
25 accessed from the web site's home page, for example.

An advantageous aspect of the invention is the provision of one or more validation/verification operations on the data. The embodiment illustrated provides for two separate validation/verification operations represented by interface filter plug-in
30 block 7 and interface filter scripts block 8. A verification/validation is provided by interface plug-in block 7 at the remote site computer 2, and may be implemented as an add-on part of browser 3. The interface filter plug-in 7 at the remote site verifies information as it is entered in remote site computer 2. A second verification/validation

is provided by interface filter scripts block 8 to verify information prior to it being committed to and stored in the database at the primary site server 6 at the information center 10. The separate operations of blocks 7 and 8 are explained below.

5

The above disclosed system provides for a very efficient and effective system to collect information, and to verify collected information for accuracy, both at the input side and collection side of the system.

10

As illustrated, at remote site computer 2 is an interface filter plug-in 7. The interface filter plug-in 7 provides for a first validation check of the data being entered at remote site computer 2. The interface filter plug-in 7 preferably checks information as it is entered; i.e., as questions are answered or fields of a form are filled in, as they appear on the monitor (not shown) of the remote site computer 2. For example, if the question/field is regarding a person's age, the interface plug-in filter 7 would instantly ask a user for confirmation of the input data if, for example, the input for that answer/field, because of a typo, was "150" years old. Clearly this data is easily recognizable by the interface plug-in filter 7 as an error which should be immediately corrected by the user.

20

Also, the interface plug-in filter 7 may be configured to check one answer/field, or a series of answers/fields, against other answers/fields. For example, if a person's weight is entered as 10 pounds but the person is also listed as being 35 years old, the interface plug-in filter 7 could query the user entering the information at the remote site computer 2 to correct the input data in one or both answers/fields.

25

An interface filter scripts block 8 is provided as a plug-in at the information center 10, and block 8 operates to filter and validate, and in particular, to check the data received from the remote site computer 2 against data already in storage in the database at the information center 10. For example, before entering new information into the database, a check is made to determine if the same information has previously been delivered to and stored in the database. Further, as another example, if the system is being used to track medical procedures, it would be

30

important to determine if the patient were treated previously using the same procedure, or a different but related procedure at another remote site. Interface filter block 8 would operate to instruct the primary site server 6 to check if the patient in question, using a unique identifier, e. g, driver's license number, has previously reported information stored within the database.

It will be apparent to one skilled in the art that the manner of making and using the claimed invention has been adequately disclosed in the above-written description of the preferred embodiments taken together with the drawing.

It will be understood that the above described preferred embodiment of the present invention is susceptible to various modifications, changes, and adaptations, and the same are intended to be comprehended within the meaning and range of equivalents of the appended claims.

WHAT IS CLAIMED IS:

1. A computer-based method for centralized collection of geographically distributed information from at least one user at a remote site computer, comprising:
 - receiving data from the at least one user with the remote site computer;
 - checking the data for validity with the remote site computer;
 - providing the user an opportunity to correct any invalid data found during the checking;
 - transmitting the data to a centralized computer over a transmission medium;
 - receiving and validating the data from the remote site computer at the centralized computer, including comparing the data to data already stored at the centralized computer to determine if it is valid or invalid;
 - if the data from the remote site computer is determined to be invalid, then performing the following until all data is determined to be valid:
 - signaling with the centralized computer to the remote site computer to provide the user an opportunity to correct invalid data;
 - transmitting corrected data from the remote site computer to the centralized computer; and
 - receiving and validating the corrected data from the remote site computer at the centralized computer, including comparing the corrected data to data already stored at the centralized computer to determine if the data is valid or invalid;
 - when all data has been determined to be valid, then entering and storing the valid data in a central database at the centralized computer.
2. The method according to claim 1, wherein the receiving data from the at least one user with the remote site computer comprises displaying a form having fields to the user into which the data is entered field by field;
 - wherein the checking the data for validity with the remote site computer comprises checking the data as it is entered in a field by the user; and
 - wherein the providing the user an opportunity to correct any invalid data found during the checking comprises signaling the user that data entered in a field may be invalid.

3. The method according to claim 2, wherein the checking the data for validity with the remote site computer comprises checking the data after data has been entered by the user into all fields of the form.

4. The method according to claim 1, wherein the transmitting the data to a centralized computer over a transmission medium comprises:

 sending the data from the remote site computer to the centralized computer via the internet.

5. The method according to claim 1, wherein the method further comprises:

 establishing a connection between the remote site computer and the centralized computer via the internet using a browser having interface filter plug-ins.

6. The method according to claim 5, wherein the interface filter plug-ins provide the checking the data for validity with the remote site computer.

7. The method according to claim 5, wherein the receiving and validating the data from the remote site computer to determine if the data is valid or invalid is performed using interface filter scripts.

8. The method according to claim 5, wherein the remote site computer and the centralized computer are programmed to perform the method using a programming language optimized for use with the browser, suitable for interactive applications, platform independent, relatively concise and downloadable through a browser.

9. The method according to claim 8, wherein the programming language comprises JAVA®.

10. The method according to claim 1, wherein the geographically distributed data is data obtained during a clinical trial.

11. A computer-based system to gather, transmit and store geographically distributed information comprising:

input means for entry of information at a remote site;

an information center having receiving means for receiving and storing the information;

transmission means for transmitting the entered information to the receiving means from the remote site input means;

first verification means at the remote site for verifying the information for accuracy as the information is being entered with the input means; and

second verification means at the information center for verifying the information received from the remote site input means by comparing the information with information previously stored at the information center.

12. The apparatus of claim 11, wherein said input means at said remote site comprises a computer having data entry means for entering data, a central processing means for processing data, and a display means for displaying data.

13. The apparatus of claim 12, wherein the transmission means comprises a browser running in the computer.

14. The apparatus of claim 13, wherein the receiving means for receiving and storing the information comprises a server including a database and a database management system.

15. The apparatus of claim 14, wherein the transmission means further comprises a wide area network connecting the server and the computer.

16. The apparatus of claim 15, wherein the wide area network comprises the internet including the world wide web.

17. The apparatus of claim 11, wherein the first verification means comprises an interface plug-in including a filter.

18. The apparatus of claim 11, wherein second verification means at the information center comprises an interface filter including a script to verify new information against stored information.

19. The apparatus of claim 11, further including security means for insuring the integrity of the information that is transmitted and that is stored.

20. The apparatus of claim 11, wherein the computer-based system is controlled by an interactive programming language software installed at the information center and accessible by the remote site.

21. The apparatus of claim 20, wherein said interactive programming language comprises the Java® programming language.

22. The apparatus of claim 18, wherein said script comprises Java Script®.

23. A computer system for the centralized collection of geographically distributed information, comprising:

- a remote site computer having a browser with a first data verification module for verifying data entered at the remote site computer;

- a transmission medium coupled to the remote site computer; and

- a central computer coupled to the transmission medium, and having a database and a second data verification module for verifying data received from the remote site computer.

24. The computer system according to claim 23, further comprising a plurality of remote site computers, each having a browser with a first data verification module for verifying data entered at the respective remote site computer, and each remote site computer being coupled to the transmission medium.

25. An article of manufacture comprising a computer program product, the computer program product comprising means for causing a computer to provide a computer-based method for centralized collection of geographically distributed information.

ABSTRACT

The centralized collection of geographically distributed data is accomplished using a system which takes advantage of an interactive programming language, such as Java® and existing wide area networks, such as the Internet including the world wide web, to collect high quality data. One or more levels of validation of the data prior to storage in a database is provided for.

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : G06F	A2	(11) International Publication Number: WO 98/52113 (43) International Publication Date: 19 November 1998 (19.11.98)
(21) International Application Number: PCT/US98/09590 (22) International Filing Date: 12 May 1998 (12.05.98) (30) Priority Data: 60/046,214 12 May 1997 (12.05.97) US (71)(72) Applicants and Inventors: KOZAM, Marc, L. [US/US]; 13245 Glenhill Road, Silver Spring, MD 20904 (US). KORMAN, Louis, Y. [US/US]; 11424 Cushman Road, Rockville, MD 20852 (US). (74) Agents: HERBERT, Toni-Junell et al.; Shanks & Herbert, Suite 306, TransPotomac Plaza, 1033 N. Fairfax Street, Alexandria, VA 22314 (US).		(81) Designated States: AU, CA, IL, JP, KR, NZ, RU, US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>Without international search report and to be republished upon receipt of that report.</i>
(54) Title: METHOD AND APPARATUS FOR THE CENTRALIZED COLLECTION OF GEOGRAPHICALLY DISTRIBUTED DATA (57) Abstract the centralized collection of geographically distributed data is accomplished using a system which takes advantage of an interactive programming language, such as Java® and existing wide area networks, such as the Internet including the world wide web, to collect high quality data. One or more levels of validation of the data prior to storage in a database is provided for.		

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon		Republic of Korea	PT	Portugal		
CN	China	KR	Republic of Korea	RO	Romania		
CU	Cuba	KZ	Kazakstan	RU	Russian Federation		
CZ	Czech Republic	LC	Saint Lucia	SD	Sudan		
DE	Germany	LI	Liechtenstein	SE	Sweden		
DK	Denmark	LK	Sri Lanka	SG	Singapore		
EE	Estonia	LR	Liberia				